	A	В	С	D	E	F	G	Н	I	J
1				nissions Calculations		<u> </u>	1	L	L	<u> </u>
2			• • • • • • • • • • • • • • • • • • • •	Summary of Emissions						
				•						
3										
4		С	ompany Name:	MGPI of Indiana, LLC						
5			Address:	7 Ridge Avenue, Lawrenceburg, Indiana 47025						
		_		-						
6	Significant	Source Mo	odification No.:	0296-35496-00005						
7	Significant	Permit Mo	dification No.:	029-35505-00005						
8	_		Paviawari	Kristen Willoughby						
9			Date:	12/22/14						
10										
11				Potential to Emit Before Controls (ton\yr)						
12	Significant Emission Units	PM	PM10	PM2.5	SO2	NOx	VOC	co	GHG	Total HAPs
13		(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)
14	One (1) pneumatic conveyor, identified as EU-11	189.22	189.22	16.08	-	-			-	-
15	One (1) corn receiving and storage system, identified as EU-12 (Stack S-111)	225.26	225.26	19.15	-	-	-	-	-	-
	One (1) grain transport system, identified as EU-12		5 5 V	10.10						
16	(Stack S-112)	20.33	20.33	1.73	-	-	-	-	-	~
		00.00	00.00	4.70	_	_	_	-	_	_
17	Seven (7) storage bins, collectively identified as EU-13	20.33	20.33	1.73						
18	Six (6) hammermills, collectively identified as EU-14	90.10	90.10	7.66	-	-	-	-	-	-
			***************************************				7.81		<b></b>	0.04
19	EU-21, which consists of fourteen (14) open fermenters	-	-	-	-	-	1.01	-	-	0.04
20	DDGS Storage (EU-34)	29.76	29.76	2.53	-	-	•	-	-	-
21	DDGS Rail/Truck Loadout (EU-35/EU-36)	27.18	27.18	2.31	-	-	~	Part 1	-	-
22	DDGS Rail/Truck Loader(EU-37/EU-38) Twenty-four (24) closed fermenters, collectively	0.27	0.27	0.05	-	-	~		-	-
23	identified as EU-22	~	-	-	-	-	57.79	-	-	0.26
							10 54			
24	Two (2) beer wells, identified as EU-23 and EU-24	-	-	-	-	_	12.51	-	-	-
25	Distillation (EU-20 and EU-25 through EU-29)	-	-	-	-	-	0.09		-	3.43E-03
26	Four (4) paddle screens, identified as EU-31 and three (3) conveyors, identified as EU-33	-	-	-	-	-	440.00	-	-	2.00
20	(0) conveyors, identified as EU-00	004.51	00101	201.01				***************************************		00.00
27	Five (5) rotary dryers, collectively identified as EU-32	201.04	201.04	201.04	-		893.43	-	-	69.90
	One (1) cooler, and one (1) transport system,	18.80	13.38	7.94	_		9.16	_	_	1.28
28	collectively identified as EU-32					27.00		464.00	07 470	
29 30	One (1) DDG Dryer, identified as EU-39 Wet Pad, identified as EU-40	418.77	418.77 -	418.77	18.84	27.86	418.77 See Note	464.28	27,473	39.36 See Note
30 31	One (1) wine room, identified as EU-41	-	-	-		-	19.52	-	-	-
32	One (1) tank farm, identified as EU-42	-	-	-	-	-	19.01	-	-	-
33	EU-43, which consists of Building 88	-	-	-	-	-	4.69	-	-	-
34	One (1) mini-tank farm, identified as EU-45	-	-	-	-	-	3.59	-	-	-
	One (1) barrel and emptying operation, identified as	_	_	-	_			-	_	_
35	EU-61						12.01			
36	Six (6) warehouses, identified as EU-71 through EU-76	-	-	-	-	-	1867.41	-	-	-
30 37	One (1) steam boiler, identified as EU-96	1.99	7.96	7.96	0.63	293.37	5.76	88.01	126,479	1.98
ر ر	One (1) steam boiler, identified as EU-97 (worst	1.00	7.50	7.50	0.00	200.07	5.70		120,713	7.00
38	case fuel)	2.85	3.28	2.21	60.77	28.53	1.12	17.17	31,926	0.39
39	One (1) loading rack, identified as EU-46	-	-	-	-	-	6.69	-		0.05
40	Subtotal Significant Emission Unit	1245.92	1246.90	689.16	80.25	349.76	3779	569.46	185878	115.2
41	Fugitive Emissions	-	-	-	-	-	128.2	-	125	0.90
42	Emergency Generator-Diesel	0.28	0.16	0.16	1.62	9.60	0.28	2.20	462	4.41E-03
43 44	Emergency Generator-Natural gas FW Pump-Diesel	1.16E-03 0.13	1.46E-03 0.13	1.46E-03 0.13	1.78E-05 0.12	0.10 1.82	3.63E-03 0.15	0.01 0.39	4.29 67.79	2.38E-03 1.59E-03
44 45	Subtotal Insignificant Activities	0.13 <b>0.41</b>	0.13	0.13	1.74	1.82 11.5	0.15	2.60	<b>533.65</b>	8.38E-03
46	Total	1246.33	1247.19	689.45	81.99	361.28	3908	572.07	186412	116.15
46				rom the DDGS production is the worst case scenario. Ti		1			× AN	

		D				-		1 11	1	1 1
40	A	В	(	D D	E	F	G	н		] ]
49			Appendix A: Er	missions Calculations						
50				Summary of Emissions						
51										
		C	ompany Name	MGPI of Indiana, LLC						
52 53		·		7 Ridge Avenue, Lawrenceburg, Indiana 47025						
	<b>6</b> :	0								
54				0296-35496-00005						
55	Significant	Permit Mo	dification No.:	029-35505-00005						
56 57			Reviewer:	Kristen Willoughby						
57			Date:	12/22/2014						
58										
59				Potential to Emit After Control (ton\yr)						
60	Significant Emission Units	РМ	PM10	PM2.5	SO2	NOx	VOC	СО	GHG	Total HAPs
61	Significant Linission Onits	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)		(tons/yr)	(tons/yr)	SCHOOL SOCIETY SERVICE	(tons/yr)
62	One (1) pneumatic conveyor, identified as EU-11	1.89	1.89	0.32	(toris/yi)	(toris/yi)	(tons/yr)	(toris/yi)	(tons/yi)	(toris/yi)
UZ	One (1) corn receiving and storage system, identified as	1.09	1.09	0.32	<del>                                     </del>	-	-	<del>-</del>	<del>-</del>	-
63	EU-12 (Stack S-111)	2.25	2.25	0.38	_	_	.=:	_	_	_
	One (1) grain transport system, identified as EU-12	5	2.20	3.33						
64	(Stack S-112)	0.20	0.20	0.03	_	-	_	-	_	-
	, , , , , , , , , , , , , , , , , , ,									
65	Seven (7) storage bins, collectively identified as EU-13	0.20	0.20	0.03	=	<u> </u>	-	=	-	-
		planta and constant	1900m Ann 1900							
66	Six (6) hammermills, collectively identified as EU-14	0.90	0.90	0.15	-	=	-		=	=
c-	EU-21, which consists of fourteen (14) open fermenters						7.81		=	0.04
67		-	-	-	-	-				1000000 400
68	DDGS Storage (EU-34)	0.30	0.30	0.05	-	-	-	-	-	=
69	DDGS Rail/Truck Loadout (EU-35/EU-36)	0.27	0.27	0.05	-	-	-	-	-	-
70	DDGS Rail/Truck Loader(EU-37/EU-38)	0.27	0.27	0.05	-	-	-	-	-	-
71	Twenty-four (24) closed fermenters, collectively						57.70			0.26
71	identified as EU-22	-	-	-	-	-	57.79	-	-	0.26
72	Two (2) beer wells, identified as EU-23 and EU-24	_	_	_		_	12.51		_	
72 73	Distillation (EU-20 and EU-25 through EU-29)	-		-	<del>  -</del>		0.09	<del>  _</del>	-	3.43E-03
, ,	Four (4) paddle screens, identified as EU-31 and three	-	-	-	<del>-</del>	-	0.08	<del>-</del>	<del>-</del>	JJL-03
74	(3) conveyors, identified as EU-33	_	-	_	_	_	440.00	_	_	2.00
	(2) 23 2) 210, 1401111104 40 20 00						. 10.00			
75	Five (5) rotary dryers, collectively identified as EU-32	30.16	30.16	30.16	_	-	893.43	_	_	69.90
	One (1) cooler, and one (1) transport system,									
76	collectively identified as EU-32	4.99	3.22	1.40	_		9.16			1.28
77	One (1) DDG Dryer, identified as EU-39	8.38	8.38	8.38	18.84	27.86	8.38	46.43	27,473	1.18
78	Wet Pad, identified as EU-40	-	<b>=</b>	-	-	Ħ	See Note	-	-	=
79	One (1) wine room, identified as EU-41	-	_	-	-	-	19.52	-	_	-
80	One (1) tank farm, identified as EU-42	-	-	-	-		19.01			
81	EU-43, which consists of Building 88	-	H	-	=	-	4.69	-	=	=
82	One (1) mini-tank farm, identified as EU-45		:=.	-	-	_	3.59	_	_	-
	One (1) barrel and emptying operation, identified as									
83	EU-61	-	-	-	-	-	12.01	-	-	-
	Six (6) warehouses, identified as EU-71 through EU-					_	1867	_	-	_
84	Six (6) warehouses, identified as EU-71 through EU-76	-	-	•	-	-				
84		- 1.99	7.96	7.96	0.63	293.37	5.76	88.01	126,479	1.98
84	76	- 1.99	7.96	7.96	0.63	293.37	D 700 700 10	88.01	126,479	1.98
34 35	76 One (1) steam boiler, identified as EU-96	- 1.99 2.85	7.96 3.28	7.96	0.63	293.37	D 700 700 10	88.01 17.17	126,479 31,926	0.39
84 85 86	76 One (1) steam boiler, identified as EU-96 One (1) steam boiler, identified as EU-97 (worst						5.76			
84 85 86 87	76 One (1) steam boiler, identified as EU-96 One (1) steam boiler, identified as EU-97 (worst case fuel)				60.77		5.76 1.12			0.39
84 85 86 87 88	76 One (1) steam boiler, identified as EU-96 One (1) steam boiler, identified as EU-97 (worst case fuel) One (1) loading rack, identified as EU-46	2.85	3.28	2.21	60.77	28.53 -	5.76 1.12 6.69	17.17 -	31,926	0.39 0.05
84 85 86 87 88 89	76 One (1) steam boiler, identified as EU-96 One (1) steam boiler, identified as EU-97 (worst case fuel) One (1) loading rack, identified as EU-46 Subtotal Significant Emission Unit Fugitive Emissions	2.85 - <b>54.66</b> -	3.28	2.21 - 51.17	60.77 - <b>80.25</b>	28.53 - <b>349.76</b>	5.76 1.12 6.69 <b>3,369</b>	17.17 - <b>151.61</b> -	31,926	0.39 0.05 77.07
84 85 86 87 88 89	76 One (1) steam boiler, identified as EU-96 One (1) steam boiler, identified as EU-97 (worst case fuel) One (1) loading rack, identified as EU-46 Subtotal Significant Emission Unit	2.85	3.28 - <b>59.29</b> -	2.21 - 51.17 -	60.77 - <b>80.25</b>	28.53 - <b>349.76</b> - 9.60	5.76 1.12 6.69 3,369 128.2	17.17 -	31,926 <b>185,878</b>	0.39 0.05 77.07 0.90
84 85 86 87 88 89 90	76 One (1) steam boiler, identified as EU-96 One (1) steam boiler, identified as EU-97 (worst case fuel) One (1) loading rack, identified as EU-46 Subtotal Significant Emission Unit Fugitive Emissions Emergency Generator-Diesel	2.85 - <b>54.66</b> - 0.28	3.28 - <b>59.29</b> - 0.16	2.21 - <b>51.17</b> - 0.16	60.77 - <b>80.25</b> - 1.62	28.53 - <b>349.76</b> - 9.60	5.76  1.12 6.69 3,369 128.2 0.28	17.17 - 151.61 - 2.20	31,926 185,878 462	0.39 0.05 77.07 0.90 4.41E-03
84 85 86 87 88 89 90 91	76 One (1) steam boiler, identified as EU-96 One (1) steam boiler, identified as EU-97 (worst case fuel) One (1) loading rack, identified as EU-46 Subtotal Significant Emission Unit Fugitive Emissions Emergency Generator-Diesel Emergency Generator-Natural gas FW Pump-Diesel	2.85 - 54.66 - 0.28 1.16E-03 0.13	3.28 - 59.29 - 0.16 1.46E-03 0.13	2.21 - 51.17 - 0.16 1.46E-03 0.13	60.77 - 80.25 - 1.62 1.78E-05 0.12	28.53 - <b>349.76</b> - 9.60 0.10 1.82	5.76 1.12 6.69 <b>3,369</b> <b>128.2</b> 0.28 3.63E-03 0.15	17.17 - 151.61 - 2.20 0.01 0.39	31,926 185,878 462 4.29 67.8	0.39 0.05 77.07 0.90 4.41E-03 2.38E-03 1.59E-03
84 85 86 87 88 89 90 91 92 93	76 One (1) steam boiler, identified as EU-96 One (1) steam boiler, identified as EU-97 (worst case fuel) One (1) loading rack, identified as EU-46 Subtotal Significant Emission Unit Fugitive Emissions Emergency Generator-Diesel Emergency Generator-Natural gas	2.85 - <b>54.66</b> - 0.28 1.16E-03	3.28 - 59.29 - 0.16 1.46E-03	2.21 - 51.17 - 0.16 1.46E-03	60.77 - 80.25 - 1.62 1.78E-05	28.53 - <b>349.76</b> - 9.60 0.10	5.76 1.12 6.69 3,369 128.2 0.28 3.63E-03	17.17 - 151.61 - 2.20 0.01	31,926 185,878 462 4.29 67.8 534	0.39 0.05 77.07 0.90 4.41E-03 2.38E-03 1.59E-03 8.38E-03

	А	В	С	D	Е	Е	G	н	ı	1	K
07	, A				E	Г	U U	П		J	N
97		ê	Appendix A: E	missions Calculations							
98				Summary of Emissions							
99											
100		C	omnany Name	MGPI of Indiana, LLC							
		•		·							
101				7 Ridge Avenue, Lawrenceburg, Indiana 47025							
102	Significant	Source Mo	dification No.:	0296-35496-00005							
103	Significant	t Permit Mo	dification No.:	029-35505-00005							
104				Kristen Willoughby							
105				12/22/2014							
105			Date	12/22/2014							
			Barra artist a	For Agostic Constitution (Party Constitution)						1	
107				Emit After Issuance of Permit (Limited PTE) (ton\yr)		110	1/00		0110		
108	Significant Emission Units	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHG	Total HAPs	
109		(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	
110	One (1) pneumatic conveyor, identified as EU-11	189.22	189.22	16.08	-	-	-	-	-	-	
1,,,	One (1) corn receiving and storage system, identified as		5.00	10.15							
111	EU-12 (Stack S-111)	5.26	5.26	19.15	-	-	-	-	-	-	
1443	One (1) grain transport system, identified as EU-12	0.00	0.00	4.70							
112	(Stack S-112)	0.96	0.96	1.73	-	-	14	-	-	-	
112	Soven (7) storage him collectively identified as 51140	0.20	0.20	0.03							
113	Seven (7) storage bins, collectively identified as EU-13	0.20	0.20	0.03	-	-	-	-	-	-	
111	Siv (6) hammarmilla, collectively identified as ELL11	90.1	90.1	7.66	_	_	_	_	_	_	
114	Six (6) hammermills, collectively identified as EU-14	30.1	au. i	7.00	-	-	1=0	<del>-</del>	-	-	
115	EU-21, which consists of fourteen (14) open fermenters	_	_	_	_	_	7.81	_	_	0.04	
116	DDGS Storage (EU-34)	0.60	0.60	2.53	-	-	7.01	<del>-</del>			
117		1.27	1.27	2.33		-		=	-	_	
117	DDGS Rail/Truck Loadout (EU-35/EU-36)	5.48	5.48	0.05	-	-	-	-	-	-	
118	DDGS Rail/Truck Loader(EU-37/EU-38)	3.46	5.40	0.05	-	-	-	-	-	-	
119	Twenty-four (24) closed fermenters, collectively						57.79			0.26	
119	identified as EU-22	-	-	-	-	-	51.18	-	-	0.20	
120	Two (2) beer wells, identified as EU-23 and EU-24	_	-	_	_	_	12.51	_	_	_	
121	Distillation (EU-20 and EU-25 through EU-29)	-	-	-	-	-	0.09	<u> </u>	-	0.00	
171	Four (4) paddle screens, identified as EU-31 and three	-	-	-	-	-	0.08		-	0.00	
122	(3) conveyors, identified as EU-33	_	-	_	_	_	440.00	_	_	2.00	
122	(0) conveyors, identified as E0-00						. 10.00			2.00	
123	Five (5) rotary dryers, collectively identified as EU-32	19.85	19.85	19.85	_	_	893.43	_	_	69.90	
	One (1) cooler, and one (1) transport system,	. 5.55		10.00						30.00	
124	collectively identified as EU-32	7.16	4.43	1.60	_	_	9.16	_	=	1.28	
125	One (1) DDG Dryer, identified as EU-39	8.4	8.4	8.4	18.84	27.86	8.38	46.43	27,473	20.30	
126	Wet Pad, identified as EU-40	-	-	-	-		See Note	-		-	
127	One (1) wine room, identified as EU-41	-	-	-	-	_	19.52	_	_	_	
128	One (1) tank farm, identified as EU-42	_	-1	-	-	_	19.01	_	_	_	
129	EU-43, which consists of Building 88	-	-	-	-	-	4.69		_	_	
130		-	-	-	-	-	3.59	_	_	_	
130	One (1) barrel and emptying operation, identified as	-		-	_	-	3.55				
131	EU-61		_	_	_	_	12.01	_	_	_	
	Six (6) warehouses, identified as EU-71 through EU-	-		-	_	_	12.01	_	_	-	
132	76		_				1,867		400	_	
133	One (1) steam boiler, identified as EU-96	1.99	7.96	7.96	0.63	293.4	5.76	88.0	126,479	1.98	
133	One (1) steam boiler, identified as EU-96  One (1) steam boiler, identified as EU-97 (worst	1.55	1.50	1.50	0.03	250.4	3.10	00.0	120,419	1.50	
124		100	265	1.06	20.77	25.20	0.56	10.42	24.674	0.20	
134	case fuel)	1.98	2.65	1.96	39.77	25.38	0.56	10.42	24,674	0.39	
135	One (1) loading rack, identified as EU-46	220.40	-	-	-	240.04	6.69	444.00	470.000	0.05	
136	Subtotal Significant Emission Unit	332.43	336.33	89.28	59.25	346.61	3,368	144.86	178,626	96.19	
137	Fugitive Emissions	-	- 0.10	-	- 4.00	-	128.23	-	-	0.90	
138	Emergency Generator-Diesel	0.28	0.16	0.16	1.62	9.60	0.28	2.20	462	4.41E-03	
139	Emergency Generator-Natural gas	1.16E-03	1.46E-03	1.46E-03	1.78E-05	0.10	3.63E-03	0.01	4.29	2.38E-03	
140	FW Pump-Diesel	0.13	0.13	0.13	0.12	1.82	0.15	0.39	67.8	1.59E-03	
141	Subtotal Insignificant Activities	0.41	0.29	0.29	1.74	11.5	0.43	2.60	534	8.38E-03	
142	Total	332.84	336.63	89.57	60.99	358.13	3,497	147.46	179,159	97.10	
143	Note: This plant is capable to produce both DDGS a	and MDGS.	The emissions t	rom the DDGS production is the worst case scenario. The	erefore, the	PTE					
144	of the wet cake storage is not included in the PTE	for the entir	e source.								

L  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30  31  32  33
2
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
4
5         6         7         8         9         10         11         12         13         14         15         16         17         18         19         20         21         22         23         24         25         26         27
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 20 21 22 23 24 25 26 27
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 20 21 22 23 24 25 26 27
7         8         9         10         11         12         13         14         15         16         17         18         19         20         21         22         23         24         25         26         27
8         9         10         11         12         13         14         15         16         17         18         19         20         21         22         23         24         25         26         27
9
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
11       12       13       14       15       16       17       18       19       20       21       22       23       24       25       26       27
15 16 17 18 19 20 21 22 23 24 25 26 27
15 16 17 18 19 20 21 22 23 24 25 26 27
15 16 17 18 19 20 21 22 23 24 25 26 27
15 16 17 18 19 20 21 22 23 24 25 26 27
16       17       18       19       20       21       22       23       24       25       26       27
17 18 19 20 21 22 23 24 25 26 27
19 20 21 22 23 24 25 26 27
19 20 21 22 23 24 25 26 27
19 20 21 22 23 24 25 26 27
21       22       23       24       25       26       27
21       22       23       24       25       26       27
23       24       25       26       27
23       24       25       26       27
24       25       26       27
25       26       27
25       26       27
27
27
28
29
30
32
33
34
35
36       37
38
39
40         41         42         43
42
43
44       45
1 TJ
46
45 46 47 48

	L
49	
50	
51	
52	
53	
54	
55	
56	
57	
49 50 51 52 53 54 55 56 57 58 60 61 62	
59	
61	
62	
63	
64	
65	
66	
6/	
69	
67 68 69 70	
71 72 73	
73	
74	
75	
76 77 78 79 80 81 82	
78	
/9 80	
81	
82	
83	
84 85	
85	
86	
87	
88	Corrected to 128.2 tpy VOC and 0.90 tpy HAP like Uncontrolled PTE and PTE After Issuance
89 90	Corrected to 128.2 tpy VOC and 0.90 tpy HAP like Uncontrolled PTE and PTE After Issuance
91	
92	
93	
94	
96	

	L
97	
98	
99 100	
101	
102	
103	
104	
105 106	
1107	
108 109	
110	
111	Permit limits on PM and PM10 but not PM2.5. So PM2.5 emissions default back to pre-controlled
112	Permit limits on PM and PM10 but not PM2.5. So PM2.5 emissions default back to pre-controlled
113	Shouldn't EU-13 PTE after issuance for PM2.5 also default back to pre-controlled emission rate as it does for EU-12?
114	
115 116	
116 117	
118	
119	
120	
121	
122	
123	
124 125	Why is HAP PTE after issuance not the same as uncontrolled PTE?
125 126 127 128 129 130	
127	
129	
130	
131	
132 133	
134	For GHG and HAP, add NG emissions plus FO emissions like was done for other pollutants?
135 136	
137	
138	
140	
141	
135 136 137 138 139 140 141 142 143	
144	

1	A	I B	<u> </u>	<u> </u>	<u> </u>	<u> </u>	G
2							Summary of HAP Emissions
							•
4							Company Nan
5							Addre
<u>-</u> 5							Significant Source Modification N
7							Significant Permit Modification N
3							Review
							Da
0				***************************************	000000000000000000000000000000000000000	0,000,000,000,000,000,000,000,000,000	
1	Significant Emission Units	Benzene	Dichlorobenzene	1	1	Toluene	Lead
2		ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr
3			<u> </u>				I
4	One (1) pneumatic conveyor, identified as EU-11		-	_	_	_	-
5 Or	ne (1) corn receiving and storage system, identified as EU-12	-	-	-	-	-	-
6	Seven (7) storage bins, collectively identified as EU-13	-	_	-	_	_	-
1.7	Six (6) hammermills, collectively identified as EU-14	_	-	-	_	-	-
8	EU-21, which consists of fourteen (14) open fermenters	_	-	1.04E-03	**	-	-
	os, surge hopper, and transport system: EU-34 through EU-36	_	-	_	_	-	-
	nty-four (24) closed fermenters, collectively identified as EU-22	_	-	7.69E-03	_	_	-
1	Two (2) beer wells, identified as EU-23 and EU-24	_	_			_	_
2	Distillation (EU-20 and EU-25 through EU-29)	_	_	2.04E-04	_	_	-
	screens, identified as EU-31 and three (3) conveyors, identified as EU-33	-	_	5.84E-02		_	-
4	Five (5) rotary dryers, collectively identified as EU-32	-	_	0.32	_	-	-
	cooler, and one (1) transport system, collectively identified as EU-32	_	-	0.43			-
6	One (1) DDG Dryer, identified as EU-39	4.78E-04	2.73E-04	12.98	0.41	7.74E-04	1.14E-04
7	Wet Pad, identified as EU-40		***************************************				
8 One (1) ra	il car loader and one (1) truck loader, identified as EU-37 and EU-38	_	_	-	_	_	_
9	One (1) wine room, identified as EU-41	-	-	<del>-</del>	***	-	-
0	One (1) tank farm, identified as EU-42	-	-	_	***		-
1	EU-43, which consists of Building 88	-	-	_	-	_	-
2	One (1) mini-tank farm, identified as EU-45	_		-	-	-	-
3	One (1) barrel and emptying operation, identified as EU-61	-	-	_	_	_	_
4	Six (6) warehouses, identified as EU-71 through EU-76	_	-	-	**	-	-
5	One (1) steam boiler, identified as EU-96	2.20E-03	1.26E-03	0.08	1.89	3.56E-03	5.24E-04
0	One (1) steam boiler, identified as EU-97 (worst case fuel)	4.29E-04	2.45E-04	0.02	0.37	6.95E-04	1.80E-03
7	One (1) loading rack, identified as EU-46	-		6.69E-03	***		-
3	Fugitive Emissions	-		0.13		_	-
	Subtotal Significant Emission Unit	3.11E-03	1.78E-03	14.02	2.66	5.03E-03	
)	Emergency Generator-Diesel	2.17E-03		2.21E-04	-	7.87E-04	
	Emergency Generator-Natural gas	5.87E-05	-	1.67E-03	1.35E-05	1 605 01	-
2	FW Pump-Diesel Subtotal Insignificant Activities	3.84E-04 <b>2.62E-03</b>	0.00E+00	4.85E-04 2.38E-03	1 255 05	1.68E-04 <b>9.55E-04</b>	
3 4	Total	5.72E-03	1.78E-03	14.03	2.66	5.99E-03	

			Ţ		<b>Y</b>	y	·	·			Y	·
000000000000000000000000000000000000000	H		J	K	L	M	N	0	Р	Q	R	S
1	Appendix A: Emissions Calculations											
2												
3												
4	MGPI of Indiana, LLC											
5	7 Ridge Avenue, Lawrenceburg, Indiana 47025											
6	0296-35496-00005											
	029-35505-00005											
	Kristen Willoughby											
	12/22/2014											
10	Cadmium	Chromium	Manganese	Nickel	Acetaldehyde	Propionaldehyde	Methanol	Acrolein	PAH	1,3-Butadiene	Xylene	Total HAP
11 12	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr
13	Connyi	COTITY	1 CO11/ y 1	1 CO11/y1	COTO Y	1 COTTY Y I	COTITY	COTT	tonyi	comy	tornyr	l comy
14	-	-	-	-	-		-	-	-		-	0.00
15	<u>-</u>	_	_	_	-	-	_	_	_	_	-	0.00
16	-	-		-	-	-	-	-	-	•	-	0.00
17	-	-	-		-	_	-	-	-	-	-	0.00
18	-	_	-	_	0.03	2.09E-03	1.04E-03	-	_	-	-	0.04
19	-	-	-	_	-	-	-	_	_	-	_	0.00
20	-	-	-	-	0.23	1.54E-02	7.69E-03	_	-	-	-	0.26
21	-	-	-	_	-	-	_		-	-	_	0.00
22	-	-	-	-	2.81E-03	2.04E-04	2.04E-04	-	-	-	_	3.43E-03
23	-	-	-	_	1.77	0.12	0.06		-	-		2.00
24	-	-	-	-	55.24	-	11.05	3.28	-	-	_	69.90
25	-	_	-	-	0.69	-	0.15	0.01	_	-	-	1.28
26	2.50E-04	3.19E-04	8.65E-05	4.78E-04	20.94	-	4.61	0.42				39.36
27	See Note		-			-			-			**
28	_	_	_	_	_	_	_	_	_	_	_	0.00
29	-	-		-	***		-	-	_	***	_	0.00
30	-			-	-	<del>-</del> -			_	-	-	0.00
31	-			-	***			-	_	***	-	0.00
32	-	-	***	-	FIF.	**	-	-	_	***		0.00
33	-	_	-	-	_	-	-	_	-	-	-	0.00
34												0.00
35	- 1.15E-03	1.47E-03	3.98E-04	2.20E-03			-					1.98
***************************************		***************************************			<b>м</b> еждинаналичностинаналичностинаналичностинаналичностинаналичностина	•••••••••••••••••••••••••••••••••••••••	***************************************			***************************************	***************************************	
36 37	5.99E-04 -	5.99E-04	1.20E-03	5.99E-04	- 6.69E-03		3.34E-02	-		***		0.39 0.05
38	-				1.28E-01		6.41E-01	-	_	***	-	0.03
39	2.00E-03	2.38E-03	1.68E-03	3.28E-03	79.0	0.14	16.55	3.71	0.00E+00	0.00E+00	0.00E+00	116.15
40	-	-	-	-	7.06E-05	-	-	2.21E-05	5.94E-04	-	5.40E-04	4.41E-03
41	-	***	NA.		2.35E-04		7.50E-05	÷~~~~~~~~~~	4.05E-06	2.48E-05	***	2.32E-03
42	-				3.15E-04	***		3.80E-05	6.91E-05		1.17E-04	1.58E-03
43	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.21E-04	0.00E+00	7.50E-05	2.95E-04	6.67E-04	2.48E-05	6.58E-04	0.008
44	2.00E-03	2.38E-03	1.68E-03	3.28E-03	79.0	0.14	16.55	3.71	6.67E-04	2.48E-05	6.58E-04	116.155
45												
46		MADAGAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	annananananananananananananananananana	***************************************	осполомическим положений положений положений положений положений положений положений положений положений положе		000000000000000000000000000000000000000	onnanonanananananananananananananan	namanananananananananananananananan		nancananananananananananananananananana	annannannannannannannannannan

	A	В	С	D	E	F	G	Н
1								
2								
3								
<u>4</u> 5								
6								
7								
8								
9								
10						PTE of	PTE of	
				Outlet Grain	Maximum Air	PM/PM10		
	Stack ID	Process Description	Control Device	Loading	Flow Rate	after	after Control	after Control**
11				(gr/dscf)	(scfm)	Control* (lb/hr)	(ton/yr)	(lb/hr)
12	S-103	Grain Receiving and pneumatic conveyor EU-11	Baghouse	0.004	12,600	0.43	1.89	0.07
12		Corn Receiving and storage system		***************************************	***************************************	***************************************		
13	S-111	EU-12	Baghouse	0.004	15,000	0.51	2.25	0.09
14	S-112	Grain Transport system EU-12	Baghouse	0.004	1,354	0.05	0.20	0.01
15	inside	Storage: (7) Grain Storage Silos (EU- 13)	Baghouse	0.004	1,354	0.05	0.20	0.01
16	S-104	(6) Hammermills and hopper (EU-14)	Baghouse	0.004	6,000	0.21	0.90	0.03
17		DDGS Storage (EU-34)	000000000000000000000000000000000000000	000000000000000000000000000000000000000	000000000000000000000000000000000000000			
18	S-341	Storage silo	Baghouse	0.004	905	0.03	0.14	0.01
19	S-342	Storage silo	Baghouse	0.004	905	0.03	0.14	0.01
20	S-343	Surge Hopper	Baghouse	0.004	86	0.00	0.01	0.00
21	S-344	Surge Hopper	Baghouse	0.004	86	0.00	0.01	0.00
22	S-350	DDGS Rail Loadout (EU-35)	Baghouse	0.004	905	0.03	0.14	0.01
23	S-360	DDGS Truck Loadout (EU-36)	Baghouse	0.004	905	0.03	0.14	0.01
24	S-370	DDGS Rail Car Loader (EU-37)	None	0.004	905	0.03	0.14	0.01
25	S-380	DDGS Truck Loader (EU-38)	None	0.004	905	0.03	0.14	0.01
26	Total		000000000000000000000000000000000000000		000000000000000000000000000000000000000	1.4	6.3	0.2

27 \*Assume all PM emissions equal PM10 emissions.

28 \*\* Assume control
29
30 Methodology: \* Assume controlled PM2.5 emissions equal 17% PM/PM10 emissions (AP-42 Table 9.9.1-1 Reference 40).

- 31 outlet grain loading (gr/dscf) provided by source with maximum air flow rate (scfm)
- 32 PTE of PM/PM10 after Control (lb/hr) = Outlet Grain Loading (gr/dscf) x Max. Air Flow Rate (scfm) x (60 min/hr) x (1 lb/7000 gr)

  PTE of PM/PM10 after Control (ton/yr) = Outlet Grain Loading (gr/dscf) x Max. Air Flow Rate (scfm) x (60 min/hr) x (1 lb/7000 gr) x (8760 hr/yr) x (1 ton/2000 lb)
- 34 PTE before Control (ton/yr) = PTE after Control (ton/yr) / (1-Control Efficiency)
- PM2.5 Control Efficiency is assumed to be less than the PM/PM10 Control Efficiency.

MGP-EPA0002093 Confidential

		J	К	L	М	N	0	Р	Q	R
1	Appendix /	A: Emissions Calculations								
2		Grain Handling								
3										
4	Company Name:	MGPI of Indiana, LLC								
5	Address:	7 Ridge Avenue, Lawrenceburg, Indiana 47025								
6	Significant Source Modification No.:	0296-35496-00005								
7	Significant Permit Modification No.:	029-35505-00005								
8	Reviewer:	Kristen Willoughby								
9	Date:	12/22/2014								
10							ganesauaassauassauassauas			
			PM2.5	PTE of PM/PM10	PTE of PM2.5			Limited PTE		Limited PTE
	PTE of PM2.5 after Control (ton/yr)	PM/PM10 Control Efficiency	Control	before	before		Limited PTE PM10 (lb/hr)	DM2 5	Limited PTE PM (ton/yr)	PM10
11			Efficiency	Control	Control	PIVI (ID/III)	PIVITO (ID/TII)	(lb/hr)	Pivi (tor/yr)	(ton/yr)
11				(ton/yr)	(ton/yr)	000000000000000000000000000000000000000	000000000000000000000000000000000000000	***************************************	030000000000000000000000000000000000000	000000000000000000000000000000000000000
12	0.32	99%	98%	189.2	16.1			Y	P.	
13	0.38	99%	98%	225.3	19.1	1.20	1.20	1.20	5.26	5.26
14	0.03	99%	98%	20.3	1.73	0.219	0.219	0.219	0.96	0.96
15	0.03	99%	98%	20.3	1.73					
16	0.15	99%	98%	90.1	7.66					
17			<u> </u>		hannennannannannannan					
18	0.02	99%	98%	13.6	1.16	0.136	0.136	0.136	0.60	0.60
19	0.02	99%	98%	13.6	1.16					
20	0.00	99%	98%	1.3	0.11					
21	0.00	99%	98%	1.3	0.11					
22	0.02	99%	98%	13.6	1.16	0.289	0.289	0.289	1.27	1.27
23	0.02	99%	98%	13.6	1.16					
24	0.02	0%	0%	0.14	0.02	1.25	1.25	1.25	5.48	5.48
25	0.02	0%	0%	0.14	0.02					
26	1.1	10.9	10.8	602.5	51.2	3.1	3.1	3.1	13.6	13.6
27										
28										
29										
30										
31										
32										
33										
34										
35										

			T 6	Г
A	В	C	D D	E
1			Appendix A: Emissions Calculations	and Directly of the Control of December 1991
2 3			VOC Emissions fr	om Distillation and Beer Wells
3				
4				MGPI of Indiana, LLC
5			Address:	7 Ridge Avenue, Lawrenceburg, Indiana 47025
6 7			Significant Source Modification No.:	0296-35496-00005
7			Significant Permit Modification No.:	029-35505-00005
8			Reviewer:	Kristen Willoughby
9			Date:	12/22/2014
10 EU-20, 25-29 Distillation				
11	Potential to Emit (PTE) of VOC:			
12				
		VOC Emission		
	Maximum Usage	Factor	VOC Emission rate	VOC Emission rate
13	(gal/hr)	(lb/1000 gal)	(lb/hr)	(ton/yr)
14	31,221	0.000679	0.02	0.1
15	L		-	<u> </u>
16 Methodology:				
17 Incarocology.	Emission factor is based on facility information and furnished by source.			
18	Emission Rate (lb/hr) = Usage (gal/hr)/1,000 x EF (lb/1,000 gal)			
18 19 20				
20	Emission Rate (ton/yr) = Emission Rate (lb/hr) x 8,760 hr/yr / 2,000 lb/ton			
20				
21 EU-20, EU25- EU-29 Distillation Operation	S .			
22				
23 24	VOC (Ib/h	r) =	0.02	
24		p		•
25 26 27 28			Distillation	
26	Uncontrolled PTE	Ib HAPs/Ib VOC	ton/yr	
27	Acetaldehyde	3.03E-02	2.81E-03	
28	Propionaldehyde	2.20E-03	2.04E-04	
29 30 31	Methanol	2.20E-03	2.04E-04	
30	Formaldehyde	2.20E-03	2.04E-04	
31	Total Uncontrolled HAP		3.43E-03	
32	L	-		ı
33 Methodology:				
34 Wethodology.	lb HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133-31145-00003			
35				
36	HAP (ton/yr) = E.F. (lb HAPs/lb VOC) x VOC (lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)			
36 37				
EU-23 and EU-24 Beer Wells #3 and #1				4.000 1 //
39	Maximum Usage		1,050	1,000 bu/hr
40		- Francisco	100 F	V/SS F
44	Pollutant	Emission Factor	VOC Emission rate	VOC Emission rate
41 42		(lb/1,000 bu)	(lb/yr)	(ton/yr)
471	VOC	2.72	2.86	12.5
43				
43 44 Methodology:				
43 44 Methodology: 45	Emission factor is based on facility information and furnished by source.			
43 44 Methodology: 45	Emission factor is based on facility information and furnished by source.  Emission rate (lb/hr) = Maximum usage (1,000 bu/hr) x EF (lb / 1,000 bu)			
43 44 Methodology: 45 46 47				
43 44 Methodology: 45 46 47	Emission rate (lb/hr) = Maximum usage (1,000 bu/hr) x EF (lb / 1,000 bu)			
43 44 Methodology: 45	Emission rate (lb/hr) = Maximum usage (1,000 bu/hr) x EF (lb / 1,000 bu)			

Description	Address: 7 Significant Source Modification No.: 0 Significant Permit Modification No.: 0 Reviewer: K	MGPI of Indiana, LLC 7 Ridge Avenue, Lawrenceburg, Indiana 4702 0296-35496-00005
Potential to Emit (PTE) of VOC from Open Fermentation:	VOC Emissions from Open and Company Name: Modern Address: 7 Significant Source Modification No.: 0 Significant Permit Modification No.: 0 Reviewer: Konstelland	MGPI of Indiana, LLC 7 Ridge Avenue, Lawrenceburg, Indiana 4702 0296-35496-00005 029-35505-00005 Kristen Willoughby
Potential to Emit (PTE) of VOC from Open Fermentation:	Company Name: M Address: 7 Significant Source Modification No.: 0 Significant Permit Modification No.: 0 Reviewer: K Date: 1	MGPI of Indiana, LLC 7 Ridge Avenue, Lawrenceburg, Indiana 4702 0296-35496-00005 029-35505-00005 Kristen Willoughby
### Potential to Emit (PTE) of VOC from Open Fermentation:    Maximum Usage	Address: 7 Significant Source Modification No.: 0 Significant Permit Modification No.: 0 Reviewer: K Date: 1	7 Ridge Avenue, Lawrenceburg, Indiana 4702 0296-35496-00005 029-35505-00005 Kristen Willoughby
### Potential to Emit (PTE) of VOC from Open Fermentation:    Maximum Usage	Address: 7 Significant Source Modification No.: 0 Significant Permit Modification No.: 0 Reviewer: K Date: 1	7 Ridge Avenue, Lawrenceburg, Indiana 4702 0296-35496-00005 029-35505-00005 Kristen Willoughby
### Potential to Emit (PTE) of VOC from Open Fermentation:    Maximum Usage	Significant Source Modification No.: 0 Significant Permit Modification No.: 0 Reviewer: K Date: 1	0296-35496-00005 029-35505-00005 Kristen Willoughby
Potential to Emit (PTE) of VOC from Open Fermentation:   Maximum Usage	Significant Permit Modification No.: 0 Reviewer: K Date: 1	029-35505-00005 Kristen Willoughby
Potential to Emit (PTE) of VOC from Open Fermentation:   Maximum Usage	Reviewer: K Date: 1	Kristen Willoughby
Potential to Emit (PTE) of VOC from Open Fermentation:   Maximum Usage	Date: 1	
Potential to Emit (PTE) of VOC from Open Fermentation:   Maximum Usage		12/22/2014
Potential to Emit (PTE) of VOC from Open Fermentation:	1,095,000 b	
Pollutant   Emission Factor (lb/1,000 bu)	1,095,000 b	
Pollutant   Emission Factor (lb/1,000 bu)	1,095,000 b	
Pollutant   Emission Factor (lb/1,000 bu)	1,095,000 b	
Ethano	• •	ou/yr
Ethanol		
Ethanol	VOC Emission rate	VOC Emission rate
Ethyl Acctate   0.046	(lb/yr)	(ton/yr)
	15,549	7.77
Isobuty  Alcohol   Total VOC   Total VOC	50	0.03
Total VOC	14	0.007
Methodology:  Emission Factors taken from AP-42, Table 9.12.3-1 Emission Rate (ton/yr) = Usage (bu/yr)/1,000 x Emission Factor (lb/1,000 bu) / 2,000 lb/ton Emission Rate (toh/yr) = Emission Facte (ton/yr) x 2,000 lb/ton / 8,760 hr/yr  Potential to Emit (PTE) of HAP from Open Fermentation:  VOC (lb/hr) =    D	4	0.002
Methodology:  Emission Factors taken from AP-42, Table 9.12.3-1 Emission Rate (tonlyr) = Usage (bulyr)/1,000 x Emission Factor (lb/1,000 bul) / 2,000 lb/ton Emission Rate (lb/hr) = Emission Rate (tonlyr) x 2,000 lb/ton / 8,760 hr/yr  Potential to Emit (PTE) of HAP from Open Fermentation:  VOC (lb/hr) =  Uncontrolled PTE   lb HAPs/lb VOC   Acetaldehyde   4,02E-03   Propionaldehyde   2,677E-04   Methanol   1,33E-04   Formaldehyde   1,33E-04   Formaldehyde   1,33E-04   Total Uncontrolled HAP    Methodology:  Ib HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133-31145-00003 HAP (tonlyr) = E.F. (lb HAPs/lb VOC) x VOC (lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)  EU-22 Closed Fermentation  Potential to Emit (PTE) of VOC Closed Fermentation: Maximum Usage		7.81
Emission Factors taken from AP-42, Table 9.12.3-1 Emission Rate (ton/yr) = Usage (tu/yr)/1,000 x Emission Factor (ib/1,000 bu) / 2,000 lb/ton   Emission Rate (ton/yr) = Lemission Rate (ton/yr) x 2,000 lb/ton / 8,760 hr/yr  Potential to Emit (PTE) of HAP from Open Fermentation:    VOC (lb/hr)		
Emission Factors taken from AP-42, Table 9.12.3-1 Emission Rate (tohyr) = Usage (tury)r)(1,000 x Emission Factor (ib/1,000 bu) / 2,000 libton Emission Rate (tohyr) = Emission Rate (tohyr) x 2,000 libton / 8,760 hr/yr  Potential to Emit (PTE) of HAP from Open Fermentation:    VOC (lb/hr)		
Emission Rate (ton/yr) = Usage (bu/yr)/1,000 x Emission Factor (lb/1,000 bu) / 2,000 lbton   Emission Rate (lb/hr) = Emission Rate (ton/yr) x 2,000 lbton / 8,760 hr/yr  Potential to Emit (PTE) of HAP from Open Fermentation:    VOC (lb/hr)		
Emission Rate (lb/hr) = Emission Rate (ton/yr) x 2,000 lb/ton / 8,760 hr/yr   Potential to Emit (PTE) of HAP from Open Fermentation:    VOC (lb/hr)		
Potential to Emit (PTE) of HAP from Open Fermentation:    VOC (lb/hr)		
VOC (lb/hr)		
VOC (lb/hr)		
Uncontrolled PTE		
Uncontrolled PTE		
Uncontrolled PTE	1.78	
Uncontrolled PTE		
Uncontrolled PTE	Open Fermentation	
Acetaldehyde 4.02E-03 Propionaldehyde 2.67E-04 Methanol 1.33E-04 Formaldehyde 1.33E-04  Total Uncontrolled HAP  Methodology:    Ib HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133-31145-00003   HAP (ton/yr) = E.F. ( lb HAPs/lb VOC) x VOC ( lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)  EU-22 Closed Fermentation  Potential to Emit (PTE) of VOC Closed Fermentation:   Maximum Usage	ton/yr	
Methodology:    Ib HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133-31145-00003   HAP (ton/yr) = E.F. (lb HAPs/lb VOC) x VOC (lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)    EU-22 Closed Fermentation	3.14E-02	
Methodology:    Ib HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133-31145-00003   HAP (ton/yr) = E.F. (lb HAPs/lb VOC) x VOC (lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)    EU-22 Closed Fermentation	2.09E-03	
Methodology:    Ib HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133-31145-00003   HAP (ton/yr) = E.F. (lb HAPs/lb VOC) x VOC (lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)    EU-22 Closed Fermentation	1.04E-03	
Methodology:    Ib HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133-31145-00003   HAP (ton/yr) = E.F. (lb HAPs/lb VOC) x VOC (lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)  EU-22 Closed Fermentation  Potential to Emit (PTE) of VOC Closed Fermentation:   Maximum Usage	1.04E-03	
Methodology:    Ib HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133-31145-00003   HAP (ton/yr) = E.F. (lb HAPs/lb VOC) x VOC (lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)    EU-22 Closed Fermentation		
Methodology:    Ib HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133-31145-00003   HAP (ton/yr) = E.F. (lb HAPs/lb VOC) x VOC (lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)    EU-22 Closed Fermentation	0.04	
Ib HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133-31145-00003 HAP (ton/yr) = E.F. (lb HAPs/lb VOC) x VOC (lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)  EU-22 Closed Fermentation  Potential to Emit (PTE) of VOC Closed Fermentation: Maximum Usage  Pollutant  Emission Factor (lb/1,000 bu)		
Ib HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133-31145-00003 HAP (ton/yr) = E.F. (lb HAPs/lb VOC) x VOC (lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)  EU-22 Closed Fermentation  Potential to Emit (PTE) of VOC Closed Fermentation: Maximum Usage  Pollutant  Emission Factor (lb/1,000 bu)		
EU-22 Closed Fermentation  Potential to Emit (PTE) of VOC Closed Fermentation:  Maximum Usage  Pollutant  Emission Factor (Ib/1,000 bu)		
EU-22 Closed Fermentation  Potential to Emit (PTE) of VOC Closed Fermentation:  Maximum Usage  Pollutant  Emission Factor (Ib/1,000 bu)		
EU-22 Closed Fermentation  Potential to Emit (PTE) of VOC Closed Fermentation:  Maximum Usage  Pollutant  Emission Factor (Ib/1,000 bu)		
Potential to Emit (PTE) of VOC Closed Fermentation:  Maximum Usage  Pollutant  Emission Factor (Ib/1,000 bu)		
Potential to Emit (PTE) of VOC Closed Fermentation:  Maximum Usage  Pollutant  Emission Factor (Ib/1,000 bu)		
Maximum Usage    Emission Factor   Pollutant   (lb/1,000 bu)		
Pollutant   Emission Factor   (lb/1,000 bu)	8,103,000 b	ni/vr
Pollutant   Emission Factor   (lb/1,000 bu)	0,103,000 D	rui yi
Pollutant (lb/1,000 bu)	VOC Emission rate	VOC Emission rate
	(lb/yr)	(ton/yr)
Ethyl Acetate 0.046 Isoamyl Alcohol 0.013 Isobutyl Alcohol 0.004	115,063	57.53
Isoamyl Alcohol 0.013 Isobutyl Alcohol 0.004		
Isobutyl Alcohol 0.004	373	0.19
Uncontrolled VOC 0.004  14.263	105	0.05
Uncontrolled VOC 14.263	32	0.02
		57.8
Methodology:		
Emission Factors taken from AP-42, Table 9.12.3-1  Emission Rate (ton/yr) = Usage (bu/yr)/1,000 x Emission Factor (lb/1,000 bu) / 2,000 lb/ton  Emission Rate (lb/hr) = Emission Rate (ton/yr) x 2,000 lb/ton / 8,760 hr/yr		
Emission Rate (ton/yr) = Usage (bu/yr)/1,000 x Emission Factor (lb/1,000 bu) / 2,000 lb/ton		
Emission Rate (lb/hr) = Emission Rate (ton/yr) x 2,000 lb/ton / 8,760 hr/yr		

А	В		С	D	E
108 109 110 111 112 113 114 115 116 117 118			•		•
.09	Potential to Emit (PTE) of HAP from Closed Fermentation:				
10					
11		VOC (lb/hr)	=	13.19	
12		_			
13			Close	d Fermentation	
14	Uncontrolled PTE		lb HAPs/lb VOC	ton/yr	
15	Acetaldehyde		4.02E-03	2.32E-01	
16	Propionaldehyde		2.67E-04	1.54E-02	
17	Methanol		1.33E-04	7.69E-03	
18	Formaldehyde		1.33E-04	7.69E-03	
19	Total Uncontrolled HAP			0.26	
20					
21 Methodology:					
22 23	lb HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133	3-31145-00003			
23	HAP (ton/yr) = E.F. (lb HAPs/lb VOC) x VOC (lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)				

	F
1	
3	
4	
5	
6	
2 3 4 5 6 7	
8	
8 9	
10	
11	
12	
43	
13	
14	
15	
16	
17	
18	
19	
20	
21 22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	

F         50         51         52         53         54         55         56         57         58         59         60         61         62         63         VOC Emission rate (Ib/hr)         65       1.78         66       0.006         67       0.002         68       0.0005         69       1.78         70       71         72       73         74       75         76       77         78       79         80       81         82       83         83       84
51 52 53 54 55 56 57 58 59 60 61 62 63 <b>VOC Emission rate</b> (lb/hr) 65 1.78 66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 78 79 80 81 82 83
52 53 54 55 56 57 58 59 60 61 62 63 VOC Emission rate (lb/hr) 65 1.78 66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 79 80 81 82 83
53         54         55         56         57         58         59         60         61         62         63         64       (lb/hr)         65       1.78         66       0.006         67       0.002         68       0.0005         69       1.78         70       71         72       73         74       75         76       77         78       79         80       81         82       83
54 55 56 57 58 59 60 61 62 63 <b>VOC Emission rate</b> (lb/hr) 65 1.78 66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 78 79 80 81 82 83
55 56 57 58 59 60 61 62 63 VOC Emission rate 64 (lb/hr) 65 1.78 66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 79 80 81 82 83
56 57 58 59 60 61 62 63  VOC Emission rate (lb/hr) 65 1.78 66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 80 81 82 83
57 58 59 60 61 62 63  VOC Emission rate (lb/hr) 65 1.78 66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 80 81 82 83
58 59 60 61 62 63  VOC Emission rate (lb/hr) 65 1.78 66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 79 80 81 82 83
59         60         61         62         63         VOC Emission rate (lb/hr)         64       (lb/hr)         65       1.78         66       0.006         67       0.002         68       0.0005         69       1.78         70       71         72       73         74       75         76       77         78       79         80       81         82       83
60 61 62 63 VOC Emission rate 64 (lb/hr) 65 1.78 66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 79 80 81 82 83
61 62 63  VOC Emission rate (lb/hr) 65 1.78 66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 79 80 81 82 83
62 63 VOC Emission rate (lb/hr) 65 1.78 66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 79 80 81 82 83
63 VOC Emission rate 64 (lb/hr) 65 1.78 66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 79 80 81 82 83
VOC Emission rate (lb/hr) 65
64 (lb/hr) 65 1.78 66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 79 80 81 82 83
65
66 0.006 67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 79 80 81 82 83
67 0.002 68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 79 80 81 82 83
68 0.0005 69 1.78 70 71 72 73 74 75 76 77 78 79 80 81 82 83
69 1.78  70  71  72  73  74  75  76  77  78  79  80  81  82  83
70 71 72 73 74 75 76 77 78 79 80 81 82 83
71 72 73 74 75 76 77 78 79 80 81 82 83
72 73 74 75 76 77 78 79 80 81 82 83
73 74 75 76 77 78 79 80 81 82 83
74 75 76 77 78 79 80 81 82
75 76 77 78 79 80 81 82 83
76 77 78 79 80 81 82 83
77 78 79 80 81 82 83
78 79 80 81 82 83
79 80 81 82 83
80 81 82 83
81 82 83
82 83
83
84
85
86
87
88
89
90
91
92
93
94
95
96
VOC Emission rate
97 (lb/hr)
98 13.14
99 0.04
100 0.01
101 0.004
102 <b>13.2</b>
103
104
105
106
107

	F
108	
109	
110	
111	
112	
113	
114	
115	
116	
117	
118	
119	
120	
121	
122	
123	

	А	В	С
1			Appendix A: Em
2			
3			
4			Company Name:
5			Address:
6		Significant Source M	i i
7		Significant Source in Significant Source in Significant Permit N	1
8		Organicant Fermit	Reviewer:
9			Date:
10			Date
L	EU-31 and EU-33 Paddle Screens/ Conveyors		
	,		
			Max Usage
12		Source	(gal/hr)
13		Spirits System	20,859
14		Whisky System	4,319
15			
16			
	Methodology:		
18		Emission Rate = Maximum Usage (gal/hr)/1,000 x VOC Emission factor (lb/1,000 gal)	
19		* Spirits System analysis of stillage based on 0.05% alcohol concentration.	
20		*Whisky System analysis of stillage based on 0.1% alcohol concentration.	
21		1/00 (II- /I)	_
22 23 24		VOC (lb/hr)	=
23			
25		Uncontrolled PTE	lb HAPs/lb VOC
26		Acetaldehyde	4.02E-03
27		Propionaldehyde	2.67E-04
28		Methanol	1.33E-04
29		Formaldehyde	1.33E-04
30		Total Uncontrolled HAP	
	Methodology:		
32		Ib HAPs/lb VOC emission factors are from uncontrolled distillation in Permit No. T133-31145-00003 and derived from the mash scrubber emissions	
33		HAP (ton/yr) = E.F. (lb HAPs/lb VOC) x VOC (lb/hr) x 8760 (hrs/yr) x 1/2000 (ton/lb)	

[	D	E	F
1	ssions Calculations	<b></b>	
2	Summary of Emissions		
3			
ļ	MGPI of Indiana, LLC		
	7 Ridge Avenue, Lawrenceburg, Indiana 47025		
ļ	0296-35496-00005		
	029-35505-00005		
	Kristen Willoughby		
9	12/22/2014		
10			
11			
	VOC Fraincian France	VOC Emission	VOC Emission
12	VOC Emission Factor* (lb/1,000 gal)	rate (lb/hr)	rate
13	3.4	70.92	(ton/yr) 311
14	6.8	29.37	129
15	Total:	100	440
16	i otai.	100	440
17			
18			
19			
20			
21			
22	100.29		
23		_	
24	Stillage		
25	ton/yr		
26	1.77		
27	1.17E-01		
28	5.84E-02		
29	5.84E-02		
30	2.00		
31			
32			
33			

А	В	С
1	<u></u>	•
2		
3		
4		
5		
6		
7		
8		
9 FU 22 Patana Da		
10 EU-32 Rotary Dr	yers	Maximovina Haana
11 12		Maximum Usage:
		Controlled
		Emission Factor
12		(lb/ton)
13	PM	0.27
13 14 15	PM10	0.27
16	PM2.5	0.27
17	FIVIZ.3	0.21
18 Methodology:		
10 Methodology.	Controlled emission Factor from AP-42, Table 9.9.7-1	
19 20	Controlled Emissions (ton/yr) = Usage (ton/yr) x EF (lb/ton) x 8,760 hr/yr / 2,000 lb/ton	
21	Uncontrolled emissions estimated based on an 85% control efficiency for controlled emissions.	
22	PM2.5 emissions conservatively assumed to be equal to PM10 emissions.	
21 22 23	1 MZ.0 Officorono concervativory accumica to be equal to 1 M/10 officorono.	
24	VOC Emissions from the Dryers	
		1
	Dryer Feed Rate (ton/hr)	Water Content
25	Differ out rate (term)	(% by wt)
26	25.5	66.66%
27		1 00.00 %
28 Methodology		
29	Potential VOC Emissions from Dryers (lb/hr) = Dryer Feed Rate (25.5 ton/hr) x Water Content of Feed (% by wt) x (lb VOC/lb water) x (2000	lb/1 ton)
29 30	Potential VOC Emissions from Dryers (ton/yr) = Potential VOC Emissions from Dryers (lb/hr) x (8760 hr/yr) x (1 ton/2000 lb)	<i>'</i>
31		
32	HAP Emissions from the Dryers	
	HAD	HAP % (by wt of
	HAP	Voc)
33		'
33 34	Acetaldehyde	6.18%
25		
35	Acrolein	0.37%
35 36	Acrolein  Methanol	0.37% 1.24%
35 36 37	Methanol	
35 36 37 38		1.24%
35 36 37 38 39	Methanol Formaldehyde	1.24%
35 36 37 38 39 40 Methodology	Methanol Formaldehyde Total	1.24%
	Methanol Formaldehyde Total	1.24%

	D	E	F	G	Н
1	Appendix A: Emissions Calculations	L	1		ı
2		Five (5) rotary dryers			
3					
4		MGPI of Indiana, LLC			
5		7 Ridge Avenue, Lawrenceburg, Indiana 47025			
6	Significant Source Modification No.:				
7	Significant Permit Modification No.:				
8		Kristen Willoughby			
9 10	Date:	12/22/2014			
11	25.5	ton/hr	Limited Usage:	147,000	ton/vr
12	25.5	ton/m	Littilled Osage.	147,000	tori/yi
12					
	Controlled Emissions	Controlled Emissions	Uncontrolled	Uncontrolled	Limited
	(lb/hr)	(ton/yr)	Emissions	Emissions	Emissions
13	(16/111)	(total))	(lb/hr)	(ton/yr)	(ton/yr)
14	6.885	30.2	45.90	201.0	19.85
15	6.885	30.2	45.90	201.0	19.85
16	6.885	30.2	45.90	201.0	19.85
17					
18					
19					
20					
21					
22					
23					
24		<u>r</u>	D 1 11 11 100	1	
	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		Potential VOCs		
3.	VOC Content of Water (lb VOC/lb water)	Potential VOC from Dryers (lb/hr)	from Dryers		
25 26	0.000	204.0	(ton/yr)		
27	0.006	204.0	893.4	J	
28					
29					
30					
31					
32					
			1		
	Potential HAP from Dryers (lb/hr)	Potential HAP from Dryers (ton/yr)			
33					
34	12.61	55.24	1		
35	0.75	3.28	]		
36	2.52	11.05	]		
37	0.07	0.32	]		
		69.9			
38		1	<b>」</b>		
39			_		
39 40			-		
39			-		

			T		_		T	Т	T
/	A	В	С	D	Annondiy A. E.	F missions Calculations	G	H	1
2				DDG Cooler an		tem Emission Estimates			
2 3 4 5 6 7									
4				C		MGPI of Indiana, LLC			
5			Ciamit	Soont Course M		7 Ridge Avenue, Lawrenceburg, Indiana 47025			
7						0296-35496-00005 029-35505-00005			
8			Olgili	incant i ciniit wi		Kristen Willoughby			
9						12/22/2014			
10					1			T	
					Uncontrolled				
	ssion	Emissio	n Point	Description	PM Emission	Uncontrolled PM <sub>10</sub> Emission Factor	Uncontrolled PM <sub>2.5</sub> Emission Factor	DDC	Sthroughput
11   Ur	nit	2	. r oc	Bootinparon	Factor				
12					(lb/ton)	(lb/ton)	(lb/ton)	(ton/hr)	(ton/yr)
		4 Screw Conve		Grain					
		Conveyors, 3 Pro		Conveying	0.061	0.034	0.0058	0.56	00.754
13 EU	J-32	1 K-V	aive	Grain				9.56	83,754
14		Drum C	ooler	Conveying	0.061	0.034	0.0058		
15				Touriveying			<u>I</u>		Totals
16					1				•
					Controlled PM				
Emis	ssion	Emissio	. Doint	Description	Emission	Controlled PM <sub>10</sub> Emission Factor	Controlled PM <sub>2.5</sub> Emission Factor	DDG	throughput
<sub>17</sub>   Ur	nit	EIIIISSIOI	i Politi	Description	Factor				
18					(lb/ton)	(lb/ton)	(lb/ton)	(ton/hr)	(ton/yr)
EII 2'	2	Hamme	or Mill	Hammer	0.067	0.052	0.036	9.56	83,754
19 EU-32		l lallille		Milling <sup>(b)</sup>	0.007	0.032	0.030	9.50	
20									Totals  Revisions needed?:
									Revisions needed?.
1 7 7 1	ssion	Emissio	n Point	Description		Limited PM Emission Rate	Limited PM <sub>10</sub> Emission Rate		
23	nit				(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)
		4 Screw Conve		Grain	0.50	0.55		1 40	0.00
24 EU	J-32	Conveyors, 3 Product Conveyors, 1 K-Valve	veyors, Conveying		Conveying 0.58	0.58 2.55	0.33	1.42	0.06
24   6	,-52		aive	Grain					
25		Drum C	ooler	Conveying	0.58	2.55	0.33	1.42	0.06
26 EU-32	,	Hamme	ar Mill	Hammer	0.47	2.05	0.36	1.58	0.26
		Tiailiik	ZI IVIIII	Milling <sup>(b)</sup>					
27 28				Totals	1.64	<b>7.16</b>	1.01	4.43	0.37
29 <b>Meth</b>	odoloa	v·			1.05	4.01	0.69	3.00	0.31
30			n AP-42, Fifth E	dition, Volume 1,	Section 9.9.1 (Gra	ain Elevators and Processes).			
31	(b)	As recommended			2.2 for Category 7		ution for PM $_{ m 10}$ is 61% of Total PM and for PM $_{ m 2.5}$ is 23% of Total PM for uncontrolled emissions. Ad	dditionally, AP	42 Appendix B.2, Table
22		DM O' D	Uncontrolled	Collection	04 111 14/4	Controlled			
32		PM Size Range PM <sub>2.5</sub>	wt% 23%	Efficiency 80%	Controlled Wt 0.046	wt% 54%			
34		PM <sub>2.5</sub> to PM <sub>10</sub>							
35		PM <sub>10</sub> and higher	38% 39%	95% 95%	0.019 0.0195	22% 23%			
36		i wi <sub>10</sub> and myner	3970	9370	0.0195	2370	-		
30			'		0.0045				
37				Overall control:	91.6%		Calculated overall control of 91.6% is not used in calculations. Have defaulted to 85%.		
38		Methodology:							
		Uncontrolled PTE	(lb/hr) = [Unconf	trolled Emission F		x Production Rate (ton/hr)]			
39			(Annless) FII	ا حال معلم المعلم	Footon /III /	O) v Deceluation Data (tau-tus) (0.000 11 " - 3			
39 40		Uncontrolled PTE				G) x Production Rate (ton/yr) / 2,000 lb/ton]			
39 40 41 42		Uncontrolled PTE Controlled PTE Ha	ammermill (lb/hr)	= [Controlled Em	ission Factor (lb/t	on DDG) x Production Rate (ton/hr)]			
38 39 40 41 42 43		Uncontrolled PTE Controlled PTE Ha	ammermill (lb/hr) ammermill (ton/y	= [Controlled Em r) = [Controlled Er	nission Factor (lb/t mission Factor (lb	on DDG) x Production Rate (ton/hr)] /ton DDG) x Production Rate (ton/yr) / 2,000 lb/ton]			
39 40 41 42 43 44		Uncontrolled PTE Controlled PTE Ha Controlled PTE Ha Uncontrolled PTE	ammermill (lb/hr) ammermill (ton/yl <mark>Hammermill (lb/l</mark>	= [Controlled Em r) = [Controlled En hr) = Controlled P	iission Factor (lb/t mission Factor (lb ' <mark>TE Hammermill (l</mark>	on DDG) x Production Rate (ton/hr)] /ton DDG) x Production Rate (ton/yr) / 2,000 lb/ton]			

ţ				***************************************				
	Α	B C	D	E	F	G	<u> </u>	
	MGPI of Indi				C	cooler Emissions (Continued)		
46	7 Ridge Ave	enue, Lawrenceburg, Indiana 4'	7025					
47 48								
40	100000000000000000000000000000000000000	1		010000000000000000000000000000000000000	Uncontrolled Emission	0.219	)	
49 50	Emission				Factors <sup>(a)</sup>	Ib/ton DDG		
51	Unit	Emission Point	Description	***************************************	DDG throughput	VOC		***************************************
52				(ton/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)
F 2		Drum Cooler	Cooling Drum Apparatus			,		
53 54		Existing Screw Conveyor	Grain					
55	EU-32	New 3 Screw Conveyors, 2 Drag Conveyors, 3 Product Conveyors 1 K-Valve	n	9.56	83,754	2.09	9.16	0.16
56 57		Existing Hammer Mill and Cyclon	e Hammer Milling	000000000000000000000000000000000000000				
59 60 61 62	(b)	VOC emission factor for DDG co Methodology : Emission rate (lb/hr) = DDG Thro	oughput (ton/hr) X D	DG Cooling Emis	•	ET Biorefining - North Manchester). HAP emission factors are derived as a percentag	e of the VOC emission f	actor presented, ass
63 64		Dryer emissions			ı			
65 66		VOC	tpy from Drying 8.38	% of VOC				
67		Acetaldehyd		7.50%				
68		Acrole		0.15%				
69		Formaldehyd		4.65%				
70		Methane		1.65%				
68 69 70 71 72		Other DDG Cooler Emission Face POET Biorefining - N Mancheste			•			
72 73 74 75		5.68		From June 2004	testing at POET-Biorefining Jewell (IA)			
76			6 lb VOC / ton DDC	3				

	1	К	ı	М	N
1	<b>,</b>		L	IVI	IN
2					
4					
5					
7					
8					
1 2 3 4 5 6 7 8 9					
			Uncon	trolled	
	Uncontrolled PM Emission Rate		PM <sub>10</sub> En		
11			Ra		
12	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)
	0.58	2.55	0.33	1.42	0.06
13					
14	0.58	2.55	0.33	1.42	0.06
15	1.17	5.11	0.65	2.85	0.11
16					
	Controlled DM Emission Reta		Control	led PM <sub>10</sub>	
	Controlled PM Emission Rate		Emissio		
17 18	(lb/hr)	(ton/vr)	(lb/hr)	(ton/yr)	(lb/hr)
	0.47	2.05	0.36	1.58	0.26
19					
20	0.47 0.64	2.05 2.81	0.36 0.49	1.58 2.16	0.26 0.35
	Emission Rate				
22	(ton/yr)				
24	0.24				
	0.24				
25					
26	1.12				
27	1.60				
28 29 30	1.36				
30		<b>-</b>			
31	B.2.3 "Typical Collection Efficiencies of Various Particulate Control Devices" states that for high efficiency centrifugal collectors, the collection efficiency is 80% for PM <sub>2.5</sub> and 95% for PM <sub>1</sub>	<sub>0.</sub> The size	e distribut	on of con	trolled
32					
33					
34					
32 33 34 35 36					
38	Note (b) shows a calculated overall % reduction of 91.6% for PM. PM2.5 and PM10 efficiencies are calculated from size cut wt% and corresponding collection efficiency				
39					
40					
42					
43	Note (b) shows a calculated overall % reduction of 91.6% for PM. PM2.5 and PM10 efficiencies are calculated from size cut wt% and corresponding collection efficiency				
44					

<u> </u>	<u></u>	K	i	M	N
45		I N		IVI	
46					
47					
48					
49	0.016 n DDG	0.00	033	0.0	10
50	h DDG	lbs/tor		lbs/to	
51	dehyde	Acro	lein	Formal	dehyde
52	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
53					
54					
134	0.69	0.0031	0.014	0.10	0.43
55					
56	uming that individual HAPs are emitted in the same proportion from cooling as from the drying emissions provided in PTE calculations for DDG Dryer EU-39.				
57		800000000000000000000000000000000000000			000000000000000000000000000000000000000
58					
59	uming that individual HAPs are emitted in the same proportion from cooling as from the drying emissions provided in PTE calculations for DDG Dryer EU-39.				
60					
61					
62					
63					
04					
1					
66					
67					
68					
69					
70					
71					
72					
73					
74	4				
65 66 67 68 69 70 71 72 73 74 75 76	4				
<u> 76</u>					

$\overline{}$									147
1	0	Р	Q	R	S	Т	U	V	W
2									
3									
4									
5 6									
7									
8									
8 9 10									
10		1							
		Contro	olled PM				trolled		
	Uncontrolled PM <sub>2.5</sub> Emission Rate	<b>I</b>	ion Rate	Controlled PM <sub>10</sub> Emission	Rate		mission		
11 12							ate		
12	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)		
	0.24	0.09	0.38	0.05	0.21	0.01	0.04		
13	0.24	0.09	0.30	0.05	0.21	0.01	0.04		
13									
14	0.24	0.58	2.55	0.33	1.42	0.06	0.24		
15	0.49	0.67	2.94	0.37	1.64	0.06	0.28		
16									
		Uncont	rolled PM				ntrolled		
	Controlled PM <sub>2.5</sub> Emission Rate	l l	ion Rate	Uncontrolled PM₁₀ Emission	n Rate		mission		
17 18							ate		
18	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)		
10	1.12	3.13	13.69	2.41	10.53	1.70	7.46		
19 20	1.12	3.13	13.69	2.41	10.53	1.70	7.46		
21	1.53	7.58	33.20	4.62	20.25	1.74	7.64		
22 23									
23									
24									
25									
26									
27									
26 27 28 29									
29									
30 F	Revision to note needed since controlled conveying emissions differ from uncontrolled emissions								
21									
32									
33									
34									
35									
36									
27									
37 38									
38 39									
40									
41 42 43									
42									
44									

	0	Р	Q	R	S	Т	U	V	W
45 46 47 48				Significant Source Modification No.:	0296-35496-00005				
46				Significant Permit Modification No.:	029-35505-00005				
47									
48		000000000000000000000000000000000000000							
49 50 51	0.0036								
50	lbs/ton DDG			Total HAP Emissions					
51	Methanol								
52	(lb/hr) (to	on/yr)	(lb/hr)	(ton/yr)					
53									
133									
54									
	0.034	0.15	0.292	1.28					
55		- 1							
56									
57 58 59 60 61 62 63 64		***************************************	000000000000000000000000000000000000000						
58									
59									
60									
61									
62									
63									
64									
65									
66									
65 66 67									
68									
69									
70									
71									
68 69 70 71 72 73 74 75 76									
73									
74									
75									
76									
				***************************************	***************************************		***************************************		~~~~~

	Х
1	
2	
4	
2 3 4 5 6 7	
7	
8	
9 10	
10	
11	
11 12	
13	
14	
15 16	
17	
18	EFs: Replaced hard-entered values with calculations
19	Controlled emission rates are hard-entered and differ from permit application. What is basis for calcs?
20 21	
21	
22 23	
23	
24	
25	
23	
26	
27 28	
29	
29 30 31	
21	
32	
33 34	
35	
36	
37 38	
39	
40 41	
42	
43 44	
44	

	Х
45	
46	
47	
48	
49	
50	
51	
52	
- 2	
53	
54	
34	
55	
-33	
56	
57	
58	
59	
60	
61	
62	
63	
64	
65	
66	
67	
68	
69	
70	
71	
72 73	
/3	
74	
75 76	
76	

	A B	С	D	E	F	G	Н	1	J	К	L			
1						Appendix B:	Emissions Ca	lculations						
2						1	DDG Dryer (EU	-39)						
3														
4					Cor	nnany Name:	MGPI of Indian	a II C						
_					001					. 47005				
5							7 Ridge Avenu		urg, indiana	14/025				
6				Signifi	cant Source Modi	ification No.:	0296-35496-00005							
7				Signif	icant Permit Modi	ification No.:	029-35505-00005							
8						Reviewer:	Kristen Willou	ghby						
9	ם						12/22/2014							
10														
	Houriy Annual Heat Content Fuel Usage													
11	Com	bustion Source	MMBtu/hr	MMBtu/yr	(Btu/scf)	(MMcf/yr)	]							
12	Direct-fired Dryer He	eat Input Capacity <sup>(a)</sup>	45	394,200	1,020	386.47	]							
13		eat Input Capacity <sup>(a)</sup>	8	70,080	1,020	68.71								
14	Total I	Heat Input Capacity	53	464,280		455.18	1							
15			4		1									
16	Prod <del>Short-term Distiller</del>	uction Capacity	ton/hr	ton/yr	-									
17 18		Production <sup>(b)</sup>	9.56	83,754	1									
10				Control	1									
19			Pollutant	Efficiency										
20	Control Efficiency For Cri	teria Emissions (%	HAPs	97%	]									
21	Removal		VOC	98%	1									
21 22 23		_	CO	90%	_									
			PM/PM <sub>10</sub> /PM <sub>2.5</sub>	98%	J									
24		Pollutant	NO	<u> </u>	СО		l s	O <sub>2</sub>	Voc		PM			
20		Foliutalit	0.12		2.0			.45	10.0		10.0			
	Emissions From DDG Drying (EU-39)	Uncontrolled			Ibs/MM						Ibs/ton DDG			
27	Dryllig (EU-39)	Emission Factor	Ibs/MM					n DDG	Ibs/ton I					
28	I lasantes Us	Units	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr		lbs/hr			
29 30	Uncontrolled Controlled		6.36	27.86	106.00 10.60	464.28 46.43	4.30	18.84	95.61 4°	3.38	95.61 1.91			
31	Limited P		6.36	- 27.86	10.60	46.43	4.30	- 18.84		3.38	1.91			
32	Ellinout	· —	0.00	1 27.00	1 .0.00	10.70	1.00	10.04	1.01		1.61			
AND 1875														
		Dallantanat	Acetalde	ehyde	Formalde	ehyde	Acr	olein	Methai	nol	Total UAD (from Natural Con Combustion)			
2/1	HAP Emissions From	Desire (EU 20)   0.31		1		.01	0.11		Total HAP (from Natural Gas Combustion)					
35	DDG Drying (EU-39)	Emission Ihe/ton DDCs Ihe/ton DDCs			<b>.</b>	n DDGS	Ibs/ton D		See Below					
36		Factors <sup>(c)</sup> Units	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr		lbs/hr			
37	Uncontrolled		4.78	20.94	2.96	12.98	0.10	0.42		4.61	0.09			
38	Controlled	PTE	0.14	0.63	0.09	0.39	0.00	0.01		0.14	2.82E-03			
39	Limited P	Limited PTE 1.91 8.38 1.48		6.49	0.10	0.42	1.05	4.61	0.09					

	А	В	С	D	E	F	G	Н	1	J K L
40 M	MGPI of Indian					DDG Dryer (EU-	39) Continue	l		
41 7	7 Ridge Avenu	ue, Lawrenc	eburg, Indiana	47025						
42										
43					-	ombustion HAPs -			T	
44				Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	Total - Organics	
_	Emission Facto	or in lb/MMct		2.1E-03	1.2E-03	Included	1.8E+00	3.4E-03		
46 47						Above				
	Potential Emiss	sion in tone/ur		4.779E-04	2.731E-04		4.097E-01	7.738E-04	4.112E-01	
49	- Oteritiai Erriiss	sion in tons/yi		4.7792-04	2.731L-04		4.09712-01	7.730L-04	4.1122-01	
50						l				
51					(	Combustion HAPs	- Metals			
52				Lead	Cadmium	Chromium	Manganese	Nickel	Total - Metals	
	Emission Facto	or in lb/MMcf		5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03		
54										
55										
56 F	Potential Emiss	sion in tons/yr		1.138E-04	2.503E-04	3.186E-04	8.648E-05	4.779E-04	1.247E-03	
57										
58										
	Notes:	N Marc 10 10 No. 2001 Marc 100 1								
60		-		dryer and of thermal of	•			anacad ayata	m will be equivalent to	combined conscituted the existing steem tube draws (portion of existing ELL 22). Metarial belongs is as follows:
	(D) IVIA	XIIIIuIII SIIOII-I	erm alsullers ary	r grain (DDG) product	ion rate taken ironi ia	acility information.	Capacity of pr	oposea syste	m will be equivalent to	combined capacity of the existing steam-tube dryers (portion of existing EU-32). Material balance is as follows:
61					(II /II )	0/ "				
62				Davasta	(lb/hr)	%solids	_			
63 64 65				Dryer fee Water / Evaporatio		35.5% 0%				
65				DDG Productio		90%				
66	Ann	nual operation	s assume that th	ne proposed dryer will			hout the year			
67		-						cturer (ICM, I	nc.). Assume PM/PM	l <sub>10</sub> emissions are equivalent. Under the Part 70 Permit Program particulate matter with an aerodynamic diameter less than or equal to a nominal 10 n
68				·-		· · · · · · · · · · · · · · · · · · ·	-		•	cific HAPs include both process emissions from the DDG drying operations and natural gas combustion emissions occurring within the direct-fired d
69	Met	thodology:								
70	(d) NO:	x and CO:								
71	Und	controlled PTE	(lb/hr) = [Uncor	ntrolled Emission Fact	or (lb/MMBtu) x Desi	gn Firing Rate (MN	/IBtu/hr)]			
72	Und	controlled PTE	E (ton/yr) = [Unco	ontrolled Emission Fa	ctor (lb/MMBtu) x De	sign Firing Rate (M	IMBtu/yr) / 2,00	00 lb/ton]		
73	SO									
74				ntrolled Emission Fact		-				
75 76				ontrolled Emission Fa	ctor (lb/ton DDG) x P	roduction Rate (to	n/yr) / 2,000 lb/	tonj		
76		C, PM/PM10/		ad Emissian Easter (Ib	often DDC) v Dreduct	ion Data (tan(ha)]				
78			-	ed Emission Factor (It			/ 2 000 lb/top1			
79		•		lled Emission Factor ( ntrolled PTE (lb/hr) x (	•		, 2,000 ID/(UII]			Highlighted equations are not correct. Suggest replacing VOC, PM equations with the equations used for HAP.
80				rolled PTE (tpy) x (1 -	•	/1				
81		Ps (lb/ton emi								
82		•		ntrolled Emission Fact	or (lb/ton DDG) x Pro	oduction Rate (ton/	hr)]			
83				ontrolled Emission Fa				ton]		
84	Cor	ntrolled PTE (	b/hr) = [Uncontro	olled Emission Rate (l	b/hr) x (1 - Control Et	fficiency)]				
85	Cor	ntrolled PTE (	on/yr) = [Uncont	trolled Emission Rate	(ton/yr) x (1-Control	Efficiency)]				
86	HAF	.Ps (lb/MMcf e	mission factor):							
87				2, Chapter 1.4, Tables			2, 1-01-006-02	, 1-03-006-02	2, and 1-03-006-03	
88	Emi	ission (tons/y	r) = Throughput (	(MMCF/yr) x Emissioi	n Factor (lb/MMCF)/2	2,000 lb/ton				

												r	 		
	А	<u> </u>	B	С	D	<u> </u>	<u> </u>	G	<u> </u>	<u> </u>	J	K		L	
<u> </u>		of Indian					DDG Dryer (EU-	39) Continued							Significant Source Modification No.
}	7 Ridg	ge Avenu	ue, Lawrenceburg	g, Indiana 4	47025										Significant Permit Modification No.
91															
92	<u>Green</u>	<u>nhouse G</u>	Sas Calculations												
93															
94						Greenhouse Gas									
95					CO2	CH4	N2O								
96	Emissi	ion Facto	r in lb/MMcf		120,000	2.3	2.2								
97															
98								1							
99	Potent	tial Emissi	ion in tons/yr		27,311	0.52	0.50								
100															
101								7							
102	Summe	ed Potent	tial Emissions in tor	ns/yr		27,312									
103				-											
104								1							
L	CO2e	Total in to	ons/yr			27,473									
106			•												
107								_							
-	Metho	odology													
}			sion Factor for unco	ontrolled is	2.2. The N2O Emiss	ion Factor for low	Nox burner is 0.64.								
					2 SCC #1-02-006-02			006-03.							
	111 Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.														
}	112 Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton														
	CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (25) + N2O Potential														
113		(-51.6.31)			.,										

	M	N	0	Р	Q	R	S
1	***						_
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25		PM-			M <sub>2.5</sub>		
26		10.0			0.0		
27		lbs/ton	DDG	lbs/to	n DDG		
28	tpy	lbs/hr	tpy	lbs/hr			
29	418.77	95.61	418.77		418.77		
30	8.38	1.91	8.38	1.91	8.38		
31	8.38	1.91	8.38	1.91	8.38		Corrected link for VOC lb/hr limited PTE
32				1			
33		Total I					
34		Emissio	วทร`*′				
35							
36	tpy	lbs/hr	tpy				
37	0.41	8.99	39.36				
38 39	0.01	0.27	1.18				
23	0.41	8.99	20.30				

	M	N	0	Р	Q	R	S
40	Significant Source Modification No.:					•	
41	Significant Permit Modification No.:	029-35505	-00005				
42							
43							
44							
45							
46							
47							
48 49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63 64							
65							
66							
	nicrometers (PM $_{10}$ ), is considered a "regulated	d pollutant".	Emissio	n			
	ryer. Emission factors include emissions for						
69							
70							
71							
72							
73							
74							
75 76							
77							
78							
79							
80							
81							
82							
83							
84							
85							
86							
87							
88							

<u> </u>	M	N	0	Р	Q	R	S
89	0296-35496-00005		L	L		L	
90	029-35505-00005						
91							
92							
93							
94							
95							
96							
97							
98							
99							
100							
101							
102							
103 104							
104							
106							
107							
108							
109							
110							
111							
112							
113							

	АВ	C D	E	F	G	н	l	J	К	L	М	N	0	Р	Q		
1		<u>.</u>		•	Appendix	A: Emissions Calculations	•			•	•						
2						Wet Pad (EU-40)											
3																	
4				Compa	ıny Name:	MGPI of Indiana, LLC											
5					Address:	7 Ridge Avenue, Lawrenceburg, Indiana 47025											
6		Signific	ant Sour	e Modific	ation No.:	0296-35496-00005											
7		Signific	cant Perm	nit Modific	ation No.:	029-35505-00005	029-35505-00005										
8 Reviewer: Kristen Willoughby																	
9					Date:	12/22/2014											
10																	
11				ontrolled Emission		0.0083	0.0	0.0001 0.00002			0.0002		0.00004		Tota		
12 13	Emission Unit	Emission Point <sup>(a)</sup>		actors <sup>(b)</sup>		lb/ton wet cake	lb/ton v	vet cake	lb/ton	wet cake	lb/ton wet cake		lb/ton wet cake		Emis		
		Lillission i oliic		Feed <sup>(c)</sup>		VOC <sup>(d)</sup>	Acetalo	lehyde <sup>(d)</sup>	Acr	olein <sup>(d)</sup>	Forma	ldehyde <sup>(</sup>	Meth	anol <sup>(d)</sup>			
14			(ton/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)		
15	EU-40	Wet Cake Production, Storage, and Loadout	24.56	215,154	0.20	0.89	0.002	0.0108	0.0005	0.0022	0.005	0.022	0.001	0.0043	0.009		
16 17 18 19 20 21 22 23	Notes:  (a) VOC and HAP emissions can result during periods of dryer start-up and shutdown, when the dryer throughput may be diverted to a wet pad so that wet feed is not sent to dry storage.  (b) Emission factor for wet cake taken from a similar operation permitted in Indiana under Permit #T095-30443-00127 (POET Biorefining - Alexandria).																

	R	S	T	U
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11	I HAP			
12	sions			
13				
14	(ton/yr)			
	0.0387			
15	0.0307			Corrected link for Methanol lb/hr emissions
16		•		
17				
18				
19				
20				
21				
22				
23				

10		А	В	С
3	1			
A	2			
A	3			
Sign	4			
Sign	5			
Source	6			Signi
Source	7			Sign
10   11   EU-41 through EU-43, EU-45, EU-61 Tanks and Bottling Operations	8			
12   13	9			
Source	10			
EU-41 (Wine Room)	11	EU-41 through EU-43, EU-45, EU-61 Tanks and Bottling Operations		
EU-41 (Wine Room)				
EU-41 (Wine Room)				
EU-41 (Wine Room)	12		Source	
EU-42 (Tank Farm)	13			
EU-43 (Bldg 88)				
EU-61 (Whiskey System)  EU-61 (Gin System)  EU-61 (Gin System)  Total  Methodology:  From Permit No. 24407: Emission Factors based on source estimates. No AP-42 or FIRE emission factors are available Emissions (ton/yr) = Maximum usage (pg/yr)1,000 x EF (lb/1,000 gal) / 2,000 lb/ton Emissions (lb/hr) = Emissions (ton/yr) x 2,000 lb/ton / 8,760 hr/yr  EU-71 through EU-76 Warehouse Emissions  Source EU-71 through EU-76  Methodology:  Emission factor taken from AP-42 Table 9.12.3-1				
EU-61 (Whiskey System)  EU-61 (Gin System)  EU-61 (Gin System)  Total  Methodology:  From Permit No. 24407: Emission Factors based on source estimates. No AP-42 or FIRE emission factors are available Emissions (ton/yr) = Maximum usage (pg/yr)1,000 x EF (lb/1,000 gal) / 2,000 lb/ton Emissions (lb/hr) = Emissions (ton/yr) x 2,000 lb/ton / 8,760 hr/yr  EU-71 through EU-76 Warehouse Emissions  Source EU-71 through EU-76  Methodology:  Emission factor taken from AP-42 Table 9.12.3-1	16			
Total  Methodology:  Methodology:  From Permit No. 24407: Emission Factors based on source estimates. No AP-42 or FIRE emission factors are available  Emissions (ton/yr) = Maximum usage (pg/yr)/1,000 x EF (lb/1,000 gal) / 2,000 lb/ton  Emissions (tlb/hr) = Emissions (ton/yr) x 2,000 lb/ton / 8,760 hr/yr  EU-71 through EU-76 Warehouse Emissions  Source  EU-71 through EU-76 Warehouse Emissions  Wethodology:  Emission factor taken from AP-42 Table 9.12.3-1	17		EU-61 (Whiskey System)	
Methodology:   Methodology:   From Permit No. 24407: Emission Factors based on source estimates. No AP-42 or FIRE emission factors are available   Emissions (ton/yr) = Maximum usage (pg/yr)/1,000 x EF (lb/1,000 gal) / 2,000 lb/ton   Emissions (ton/yr) x 2,000 lb/ton / 8,760 hr/yr	18		EU-61 (Gin System)	
Methodology:   From Permit No. 24407: Emission Factors based on source estimates. No AP-42 or FIRE emission factors are available   Emissions (ton/yr) = Maximum usage (pg/yr)/1,000 x EF (lb/1,000 gal) / 2,000 lb/ton   Emissions (ton/yr) x 2,000 lb/ton / 8,760 hr/yr	19		Total	
From Permit No. 24407: Emission Factors based on source estimates. No AP-42 or FIRE emission factors are available  Emissions (ton/yr) = Maximum usage (pg/yr)/1,000 x EF (lb/1,000 gal) / 2,000 lb/ton  Emissions (ton/yr) x 2,000 lb/ton / 8,760 hr/yr  Emissions (ton/yr) x 2,000 lb/ton / 8,760 hr/yr  EU-71 through EU-76 Warehouse Emissions  Source  EU-71 through EU-76 Warehouse Emissions  Methodology:  Emission factor taken from AP-42 Table 9.12.3-1	20			**************************************
Emissions (ton/yr) = Maximum usage (pg/yr)/1,000 x EF (lb/1,000 gal) / 2,000 lb/ton  Emissions (lb/hr) = Emissions (ton/yr) x 2,000 lb/ton / 8,760 hr/yr  ED-71 through EU-76 Warehouse Emissions  Source  EU-71 through EU-76  Buthodology:  Emissions (ton/yr) = Maximum usage (pg/yr)/1,000 x EF (lb/1,000 gal) / 2,000 lb/ton / 8,760 hr/yr  Emissions (ton/yr) x 2,000 lb/ton / 8,760 hr/yr  Source  EU-71 through EU-76  EU-71 through EU-76  Emission factor taken from AP-42 Table 9.12.3-1	21	Methodology:		
Emissions (lb/hr) = Emissions (ton/yr) x 2,000 lb/ton / 8,760 hr/yr	22		From Permit No. 24407: Emission Factors based on source estimates. No AP-42 or FIRE emission factors are available	
25 EU-71 through EU-76 Warehouse Emissions  27 Source 28 EU-71 through EU-76 Warehouse Emissions  EU-71 through EU-76 Warehouse Emissions  Source EU-71 through EU-76  EU-71 through EU-76  Emission factor taken from AP-42 Table 9.12.3-1			Emissions (ton/yr) = Maximum usage (pg/yr)/1,000 x EF (lb/1,000 gal) / 2,000 lb/ton	
EU-71 through EU-76 Warehouse Emissions  Source EU-71 through EU-76 Warehouse Emissions  Source EU-71 through EU-76  Wethodology:  Emission factor taken from AP-42 Table 9.12.3-1			Emissions (Ib/hr) = Emissions (ton/yr) x 2,000 lb/ton / 8,760 hr/yr	
Source   EU-71 through EU-76   EU-71 through EU-76   Emission factor taken from AP-42 Table 9.12.3-1				
EU-71 through EU-76    Second	26	EU-71 through EU-76 Warehouse Emissions		
EU-71 through EU-76    Second				
EU-71 through EU-76    Second	27		Source	
29 30 Methodology:  Emission factor taken from AP-42 Table 9.12.3-1				
30 Methodology: 31 Emission factor taken from AP-42 Table 9.12.3-1				***************************************
Emission factor taken from AP-42 Table 9.12.3-1		Methodology:		
Emissions (tonky) = # horrole v EE (th/horroll/w) / 0.000 th/hor		······································	Emission factor taken from AP-42 Table 9.12.3-1	
EMISSIONS (LON/VI) - # DATTEIS X EF (LD/DATTEI/VI) / Z.UUU ID/TON	32		Emissions (ton/yr) = # barrels x EF (lb/barrel/yr) / 2,000 lb/ton	

	D	E	F	G									
1			Emissions Calculations										
2			Summary of Emissions										
3			,										
	0.00	an a a a Na an a .	MCDI of Indiana III C										
5	Col		MGPI of Indiana, LLC										
	ficant Source Mac		7 Ridge Avenue, Lawrenceburg, Indiana 47025 0296-35496-00005										
	ificant Permit Mod												
8	incam Pennit Mot		Kristen Willoughby										
9													
10	Date: 12/22/2014												
11													
		VOC											
		Emission		voc									
	Maximum Usage	Factor	VOC Emissions	Emissions									
12	(PG/yr)	(lb/1000 gal)	(lb/hr)	(ton/yr)									
13	32,000,000	1.22	4.46	19.5									
14	30,000,000	1.27	4.34	19.0									
15	14,000,000	0.67	1.07	4.69									
16	10,000,000	0.718	0.82	3.59									
17	13,000,000	0.95	1.41	6.18									
18	12,775,000	0.913	1.33	5.83									
19	***************************************	000000000000000000000000000000000000000	13.43	58.8									
20													
21													
22													
23													
24													
25													
26	***************************************	pannanaanaanaanaanaanaanaanaanaanaanaana		voc									
	Emission Factor		VOC Emissions	Emissions									
27	(lb/barrel/yr)	# Barrels	(lb/yr)	(ton/yr)									
28	6.9	541278	3,734,818	1,867									
29			<u> </u>	***************************************									
30													
31													
32													
L	<u> </u>												

	А	В	С	D	E	F	G	Н	
1					Appendix A: Emissions Calculations				
2					Rail Car and Truck Loading Emissions.				
3									
4			ı		MGPI of Indiana, LLC				
5		0.	· · · · · · · · · · · · · · · · · · ·		7 Ridge Avenue, Lawrenceburg, Indiana 47025				
6 7			_		0296-35496-00005				
8		31	ignincam Permit		029-35505-00005 Kristen Willoughby				
9					12/22/2014				
10			I all all all all all all all all all al						
	EU-46 Rail	Car and Truck Load	ding Emissions						
12	000000000000000000000000000000000000000	000000000000000000000000000000000000000			Loading Properties <sup>(a)</sup>	010000000000000000000000000000000000000	Throughput <sup>(5)</sup>	1	
	Fn	nission Point	Loading	Loading	Vapor Pressure	Vapor Molecular	Annual	1	
12			Temperature (F)	Temperature (R)	(psi)	Weight	(1,000 gal/yr)		
13 14	Pail Car	and Truck Loading	62	521.67	0.689	(lb/lb-mol) 46	29,450	1	
15	nan Gal	and HUUN LUAUIIIY	J	JZ 1.07	0.009	40	L 29,450	J	
16	000000000000000000000000000000000000000				Uncontrolled	1			
10			Saturation	Loading Loss <sup>(d)</sup>	Choshironou				
17	En	nission Point	Factor <sup>(c)</sup>	(lb/10 <sup>3</sup> gal)	VOC Emissions <sup>(e)</sup>				
18				(	Annual (ton/yr)				
19	Rail Car	and Truck Loading	0.6	0.454	6.69	-			
20		Total			6.69				
21	300000000000000000000000000000000000000		ncibuscononcentrativo (1900 p. 1900 p.	000000000000000000000000000000000000000		•			
	<b>Viethodolo</b>								
23		Vapor pressure and r Antoine's Coefficients			erial property information for ethanol. C)]; P in bar, T in K				
24 25 26 27 28 29		Antonie's Goenicients	A =	5.37229	0)], i iii bai, i iii i				
26			B =	1670.409					
27			C = T =	-40.191	IZ				
28			! = P =	289.667 0.047	K bar				
			P =	0.689	psi				
30 31 32 33 34 35 36 37	(b)	Maximum annual pro	oduction of:	31,000,000	gal/yr		_		
32					Product proof: Product Ethanol concentration:		proof		
34					Product Ethanol concentration: Maximum annual Ethanol throughput:		_ gal/yr		
35					from Section 5.2 of AP-42, Fifth Edition, Volume 1.		_0 ,.		
36					ology in Section 5.2 of AP-42, Fifth Edition, Volume 1.				
37		Sample Calculation,			otor ( )				
30		LL (ID/TO gai)=	12.46 SMP / T ;		ctor () ılar Weight (lb/lb-mol)				
40				P = Vapor Pressu					
41				T = Loading Temp					
38 39 40 41 42 43					0.6) (46 lb/lb-mol) (0.689 psi)		<b>.</b>	II. / 405 .	
		L <sub>L</sub> =	<u>=</u>	0.454	lb / 10 <sup>3</sup> ga				
44 45					521.67 R				
46	(e)	Emissions estimated	by applying the lo	ading loss to the a	pplicable loading throughput.				
47		sample calculation, a							

	А	В	С	D	E	F	G	Н					
48			0.454 lb	29,450 x1,000 gal	ton	WAR THE RESERVE OF TH	6.69	ton					
49			1000 gal	yr	2,000 lb			yr					
50													
51													
52		НАР	Product	HAP Fraction	Uncontrolled PTE HAP (ton/yr)								
53		Acetaldehyde <sup>1</sup>	ethanol	1.00E-03	6.69E-03								
54		Methanol <sup>2</sup>	ethanol	5.00E-03	3.34E-02								
55		Formaldehyde 1	ethanol	1.00E-03	6.69E-03								
56		Total			4.68E-02								
57 58		1. Acetaldehyde and Formaldehyde are estimated to be at trace levels in ethanol. It will conservatively assume that these trace levels do not exceed 1000 ppm in the ethanol product.  2. Methanol concentration is based on maximum weight percent of 0.5% as per ASTM D 4806											
59		Note: HAP emission r	ates based on pe	rformance tests at si	milar facilities.								

	A	В	С	D	Е	F	G
1				Appendix A: Emis	sions Calculation	ıs	
2				Equipment L	eak Fugitive Emis	ssions	
3							
4				Company Name:	MGPI of Indiana,	LLC	
5				Address:	7 Ridge Avenue,	Lawrencebu	ırg, Indiana
6		Sign	ificant Source	Modification No.:	0296-35496-0000	5	
7		Sigr	nificant Permi	t Modification No.:	029-35505-00005		
8				Reviewer:	Kristen Willough	by	
9				Date:	12/22/2014		
10							
11	EU-81 Equipment Leak Fugitive Emissions						
				pm * * pm 4		Voc	Voc
12		Component	Count	Emission Factor (lb/hr/component)	% voc	(lb/hr)	Emissions (ton/yr)
12 13		Component Pumps	Count 124	0.0439	60%	3.27	14.31
14		Valves	4,481	0.0089	60%	23.93	104.81
15		Flanges	6,940	0.0005	60%	2.08	9.12
16		i idiigoo	0,040	0.0000	Total	29.28	128.23
17			000000000000000000000000000000000000000	000000000000000000000000000000000000000	10ta1	40.40	120.20
18	Methodology:						
19	4	Component counts ba	ased on facility e	stimates. Counts exclud	de components within	former	
20		•	=	vned or operated by MG	•	TOTTIO	
21			-	n from "Protocol for Equ		n Estimates"	
22		EPA-453/R-95-017, N			inprinorit Educ Entrodor	, Estimates	
23				F (lb/hr/component) x %	6 VOC		
24		, ,	•	x 8,760 hr/yr / 2,000 lb			
25			,	<b>,,</b>			
26		Total Fugitive VOCs	(ton/yr)			128.23	
				) Frantian	Fugitive HAP E	missions	
27		HAP	ПАІ	P Fraction	(tons/y	r)	
28		Acetaldehyde <sup>1</sup>	1	.00E-03	1.28E-0	)1	
29		Methanol <sup>2</sup>	5	.00E-03	6.41E-0	)1	
30		Formaldehyde <sup>1</sup>	1	.00E-03	1.28E-0	01	
31	<u>.</u> j	Total			0.90		
				timated to be at trace levelopm ppm in the ethanol produc		vatively assume	-
32	_					6	
33		Z. Methanol Concentratio	m is pased on max	dimum weight percent of 0.	.0 /0 ds pei ASTIVI D 460		

	A	В	С	D	Е	F	G		
34	Fugitive HAP Emissions (tons/yr) = VOC (tons/yr) x HAP Fraction								

A BC	D	E	F	G	Н	ı	1
1   A     B C	<i>D</i>		Appendix A: Emission Calculations	1 3		ı 1	1 ,
			Natural Gas Combustion Only				
2			Utility Boiler				
4		Company Name:	MGPI of Indiana, LLC				
5			7 Ridge Avenue, Lawrenceburg, Indiana 47025				
6		Significant Source Modification No.:					
7		Significant Permit Modification No.:					
8			Kristen Willoughby 12/22/2014				
10		Date.	12/22/2014				
	Potential Throughp	out					
12 MMBtu/hr	MMCF/yr						
13	•						
14 244.0	2095.5						
15							
16	***************************************		-	Pollutant			
17	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CC
18 Emission Factor in II	1.9	7.6	7.6	0.6	280.0	5.5	84.0
19					**see below		
20   21   Potential Emission ii	1.99	7.96	7.96	0.63	293.4	5.76	88.0
22 Fotential Emission ii	1.55	7.80	7.80	0.03	285.4	3.70	00.0
	filterable PM onlv.	PM10 emission factor is condensable and	d filterable PM10 combined.		L		L
	-	nd filterable PM2.5 combined.					
	NOx: Uncontrolle	d = 280 (pre-NSPS) or 190 (post-NSPS), L	_ow NOx Burner = 140, Flue gas recirculation = 100 (\$	See Table 1.4-1	1)		
26							
27 Methodology							
28 All emission factors are	e based on norma						
All emission factors are 29 MMBtu = 1,020,000							
28 All emission factors are 29 MMBtu = 1,020,000 30 MMCF = 1,000,000 Ct		uit Canacity (MMRtu/hr) y 8 760 hrs/yr y 1 N	MMCE/1 020 MMRtu				
28 All emission factors are 29 MMBtu = 1,020,000 30 MMCF = 1,000,000 Ct 31 Potential Throughput (	MMCF) = Heat Inp	ut Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 N 4. Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-					
28 All emission factors are 29 MMBtu = 1,020,000 30 MMCF = 1,000,000 Ct 31 Potential Throughput (	MMCF) = Heat Inp	ut Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 N .4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-					
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Ct Potential Throughput ( Emission Factors from (AP-42 Supplement D	MMCF) = Heat Inp AP 42, Chapter 1.		01-006-01, 1-01-006-04				
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Ct Potential Throughput ( Emission Factors from (AP-42 Supplement D Emission (tons/yr) = Th	MMCF) = Heat Inp AP 42, Chapter 1.	4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-	01-006-01, 1-01-006-04 ton				
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Ct Potential Throughput ( Emission Factors from (AP-42 Supplement D Emission (tons/yr) = Th	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/	.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/	01-006-01, 1-01-006-04 ton HAPs - Organics				
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Ct Potential Throughput ( Emission Factors from (AP-42 Supplement D Emission (tons/yr) = Tt  Emission (tons/yr) = Tt	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/ Benzene	/yr) x Emission Factor (lb/MMCF)/2,000 lb/f	ton  HAPs - Organics  Formaldehyde	Hexane	Toluene		
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Ct Potential Throughput ( Emission Factors from (AP-42 Supplement D Emission (tons/yr) = Th  Emission Factor in II	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/	.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/	01-006-01, 1-01-006-04 ton HAPs - Organics	Hexane 1.8E+00	Toluene 3.4E-03		
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Ct Potential Throughput (I) Emission Factors from (AP-42 Supplement D Emission (tons/yr) = Tt  Emission Factor in II	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/ Benzene	/yr) x Emission Factor (lb/MMCF)/2,000 lb/f	ton  HAPs - Organics  Formaldehyde	1	l l		
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Ct Potential Throughput ( Emission Factors from (AP-42 Supplement D Emission (tons/yr) = TI  Emission Factor in II	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/ Benzene 2.1E-03	A, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene  1.2E-03	ton  HAPs - Organics  Formaldehyde 7.5E-02	1.8E+00	3.4E-03		
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Cu Throughput (I) Emission Factors from (AP-42 Supplement D Emission (tons/yr) = Th Emission Factor in II Emission Factor in II Potential Emission ii	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/ Benzene	/yr) x Emission Factor (lb/MMCF)/2,000 lb/f	ton  HAPs - Organics  Formaldehyde	1	l l		
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Cu Throughput (I) Emission Factors from (AP-42 Supplement D Emission (tons/yr) = Ti Emission Factor in II Emission Factor in II Potential Emission ii  Potential Emission ii	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/ Benzene 2.1E-03	A, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene  1.2E-03	ton  HAPs - Organics  Formaldehyde 7.5E-02	1.8E+00	3.4E-03		
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Cu Throughput (I) Emission Factors from (AP-42 Supplement D Emission (tons/yr) = Th Emission Factor in II Emission Factor in II Potential Emission ii	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/ Benzene 2.1E-03	A, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene  1.2E-03	ton  HAPs - Organics  Formaldehyde 7.5E-02	1.8E+00	3.4E-03		
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Ct Potential Throughput ( Emission Factors from (AP-42 Supplement D Emission (tons/yr) = Tt  Emission Factor in II  Emission Factor in II  Potential Emission ii  Potential Emission ii	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/ Benzene 2.1E-03	A, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene  1.2E-03	01-006-01, 1-01-006-04  ton  HAPs - Organics  Formaldehyde	1.8E+00	3.4E-03		
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Cu Throughput (I) Emission Factors from (AP-42 Supplement D Emission (tons/yr) = TI Emission Factor in II Emission Factor in II Potential Emission ii Potential Emission ii Potential Emission ii	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/ Benzene 2.1E-03	.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene 1.2E-03	01-006-01, 1-01-006-04  ton  HAPs - Organics  Formaldehyde 7.5E-02  7.86E-02  HAPs - Metals	1.8E+00 1.89E+00	3.4E-03 3.56E-03	Total HAPs	
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Cu Potential Throughput (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/ Benzene 2.1E-03 2.20E-03	.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene 1.2E-03  1.26E-03	on-006-01, 1-01-006-04  ton  HAPs - Organics  Formaldehyde 7.5E-02  7.86E-02  HAPs - Metals  Chromium	1.8E+00 1.89E+00 Manganese	3.4E-03 3.56E-03 Nickel	Total HAPs	
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Ct Throughput (I) Capacital Throughp	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/ Benzene 2.1E-03 2.20E-03 Lead 5.0E-04	A, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene 1.2E-03  1.26E-03  Cadmium 1.1E-03	01-006-01, 1-01-006-04  ton  HAPs - Organics  Formaldehyde	1.8E+00 1.89E+00 Manganese 3.8E-04	3.4E-03 3.56E-03 Nickel 2.1E-03	Total HAPs	
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Cu Throughput (I) Emission Factors from AP-42 Supplement D Emission (tons/yr) = Ti Emission Factor in II Emission Factor in II Potential Emission ii Emission Factor in II Emission Factor in II Emission Factor in II Potential Emission ii Emission Factor in II Potential Emission ii Potential Emission ii Potential Emission ii Potential Emission ii	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/ Benzene 2.1E-03 2.20E-03	.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene 1.2E-03  1.26E-03	on-006-01, 1-01-006-04  ton  HAPs - Organics  Formaldehyde 7.5E-02  7.86E-02  HAPs - Metals  Chromium	1.8E+00 1.89E+00 Manganese	3.4E-03 3.56E-03 Nickel	Total HAPs 1.98	
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Cu Throughput (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	MMCF) = Heat Inp AP 42, Chapter 1. nroughput (MMCF/ Benzene 2.1E-03 2.20E-03 Lead 5.0E-04	A, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene 1.2E-03  1.26E-03  Cadmium 1.1E-03	01-006-01, 1-01-006-04  ton  HAPs - Organics  Formaldehyde	1.8E+00 1.89E+00 Manganese 3.8E-04	3.4E-03 3.56E-03 Nickel 2.1E-03		
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Cu Throughput (I) Capacital Throughp	MMCF) = Heat Inp AP 42, Chapter 1. hroughput (MMCF/ Benzene 2.1E-03 2.20E-03 Lead 5.0E-04	A, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene 1.2E-03  Cadmium 1.1E-03	01-006-01, 1-01-006-04  ton  HAPs - Organics  Formaldehyde	1.8E+00 1.89E+00 Manganese 3.8E-04	3.4E-03 3.56E-03 Nickel 2.1E-03		
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Cu Throughput (I) Emission Factors from (AP-42 Supplement D) Emission (tons/yr) = Ti Emission Factor in II  Potential Emission ii  Potential Emission ii  Emission Factor in II  Potential Emission ii  Potential Emission ii  Throughput (I) Emission Factors from Emission (tons/yr) = Ti Emission Factor in II  Potential Emission ii  Throughput (I) Emission Factor in III  Throughput (I) Emi	MMCF) = Heat Inp AP 42, Chapter 1.  nroughput (MMCF/  Benzene 2.1E-03  2.20E-03  Lead 5.0E-04  5.24E-04  c and metal HAPs	A, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene 1.2E-03  1.26E-03  Cadmium 1.1E-03  1.15E-03	01-006-01, 1-01-006-04  ton  HAPs - Organics  Formaldehyde	1.8E+00 1.89E+00 Manganese 3.8E-04	3.4E-03 3.56E-03 Nickel 2.1E-03		
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Cu Throughput (I) Emission Factors from (AP-42 Supplement D) Emission (tons/yr) = Ti Emission Factor in II  Potential Emission ii  Potential Emission ii  Emission Factor in II  Potential Emission ii  Factor in II  The five highest organication ii  Additional HAPs emission  MMCF = 1,000,000 Cu Potential Throughput (I)  Applies The five highest organication ii  Additional HAPs emission	MMCF) = Heat Inp AP 42, Chapter 1.  nroughput (MMCF/  Benzene 2.1E-03  2.20E-03  Lead 5.0E-04  5.24E-04  c and metal HAPs	A, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene 1.2E-03  Cadmium 1.1E-03	01-006-01, 1-01-006-04  ton  HAPs - Organics  Formaldehyde	1.8E+00 1.89E+00 Manganese 3.8E-04	3.4E-03 3.56E-03 Nickel 2.1E-03		
All emission factors are MMBtu = 1,020,000 MMCF = 1,000,000 Cu The potential Throughput (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	MMCF) = Heat Inp AP 42, Chapter 1.  nroughput (MMCF/  Benzene 2.1E-03  2.20E-03  Lead 5.0E-04  5.24E-04  c and metal HAPs	A, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-/yr) x Emission Factor (lb/MMCF)/2,000 lb/f  Dichlorobenzene 1.2E-03  1.26E-03  Cadmium 1.1E-03  1.15E-03	01-006-01, 1-01-006-04  ton  HAPs - Organics  Formaldehyde	1.8E+00 1.89E+00 Manganese 3.8E-04	3.4E-03 3.56E-03 Nickel 2.1E-03		

	А ВС	D	Е	F	G	Н	ı	J
56		CO2	CH4	N2O				
57	Emission Factor in I	120,000	2.3	2.2				
58								
59								
60	Potential Emission i	125,732	2.4	2.3				
61								
62								
63	Summed Potential En	nissions in tons/yr	125,736					
64								
65								
66	CO2e Total in tons/yr		126,479					
67								
68								
69	Methodology							
70	The N2O Emission Factor	or for uncontrolled is 2	er is 0.64.					
71	Emission Factors are fro	m AP 42, Table 1.4-2	, and 1-03-006-03.					
72	Global Warming Potentia	lls (GWP) from Table						
	Emission (tons/yr) = Thro							
74	CO2e (tons/yr) = CO2 P	otential Emission ton/	WP (298).					

	A B C	D	E	F	G	Н	1	Т
1	7  0 0	U		A: Emission Ca	L	I 11	1	1 ,
2				I Gas Combustio				
3				<b>Utility Boiler</b>	-			
4			Company Name:	MGPI of Indiana	, LLC			
5			Address:	7 Ridge Avenue,	Lawrenceb	urg, Indiana	47025	
6			Significant Source Modification No.:	0296-35496-0000	5			
7			Significant Permit Modification No.:					
8				Kristen Willough	nby			
9			Date:	12/22/2014				
10 11	Hoot Input Consoity HHV	Potential Throu	ahput					
12	Heat Input Capacity HHV  MMBtu/hr  MMBtu	MMCF/yr	griput					
13	MMcf							
14	47.6 1020	408.8						
15		l						
16								
	Unrecognized Fuel Oil usage			Potential Through	put			
	Heat Input Capacity	MMBtu		MMCF/yr				
19	MMBtu/yr	MMcf		400.0				
20	140736.0	1020		138.0				
22								
23					Pollutant			
24		PM*	PM10*	direct PM2.5*	SO2	NOx	Voc	СО
	Emission Factor in lb/MMCF	1.9	7.6	7.6	0.6	100	5.5	84
26						**see below		
27								
	Potential Emission ir	0.39	1.55	1.55	0.12	20.4	1.12	17.2
29								
	Potential Emissions from Unr	0.13	0.52	0.52	0.04	6.90	0.38	5.80
	Fuel Oil consumption *PM emission factor is filteral	Ne PM only PM	110 emission factor is filterable and conden	sable PM10 combi	ned			
	PM2.5 emission factor is filter	•		Sable I WITO COIIIDI	ned.			
34			100, Low NOx Burner = 50, Low NOx Burne	ers/Flue gas recirc	ulation = 32			
35				Ü				
36	Methodology							
37	All emission factors are based	d on normal firir						
ļ	MMBtu = 1,000,000 I							
	MMCF = 1,000,000 Cubic Fe							
		•	4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-00		, 1-03-006-02	2, and 1-03-00	06-03	
		•	apacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMC	r/1,020 MMBtu				
42	Emission (tons/yr) = i nrough	put (wiwiCF/yr) >	Emission Factor (lb/MMCF)/2,000 lb/ton					
	HAPS Calculations							
45	TIAL O CUICUIAUOIIS							
46		***************************************	HAPs	- Organics				1
47		Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	Total - Organics	1
	Emission Factor in It	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03		
49								
50								]
	Potential Emission ir	4.292E-04	2.453E-04	1.533E-02	3.679E-01	6.950E-04	3.846E-01	
52								
53								7
54				s - Metals				4
55	Emission Easter in 14	Lead	Cadmium	Chromium	Manganese	1	Total - Metals	
26	Emission Factor in It	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03	L	

	Α	В	С	D	E	F	G	Н	I	J	
57											
58										7	
59	Potential Emissic	n ir		1.022E-04	2.248E-04	2.862E-04	7.767E-05	4.292E-04	1.120E-03		
60											
61								Total HAPs	3.857E-01	]	
62	Methodology is th	ne sai	me as a	£				Worst HAP	3.679E-01	7	
63										_	
64	The five highest organic and metal HAPs emission factors are provided above.										
65	Additional HAPs	emiss									
66											

## 67 Greenhouse Gas Calculations 68

69			Greenhouse Gas	
70		CO2	CH4	N2O
71	Emission Factor in It	120,000	2.3	2.2
72				
73				
74	Potential Emission ir	24,528	0.5	0.4
75				
76				
77	Summed Potential Emissions	in tons/yr	24,529	
78				
79				
80	CO2e Total in tons/yr		24,674	
81				
82				

- 82
  83 Methodology
  84 The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low NOx burner is 0.64.
  85 Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.
  86 Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
  87 Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
  88 CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (25) + N2O Potential Emission ton/yr x

MGP-EPA0002130 Confidential

		····			·	<b>,</b>		,
	A B C	D	E	F	G	Н	1	J
1		Appendix A:	Emissions Calculations					
2	Commercial/Institutional/Residential Combustors (< 100 MMBtu/hr)							
3			#1 and #2 Fuel Oil					
4	Con	npanv Name:	MGPI of Indiana, LLC					
5			7 Ridge Avenue, Lawrenceburg, Indiana 47025					
6	Significant Source Mod							
7								
	Significant Permit Mod							
8			Kristen Willoughby					
		Date:	12/22/2014					
10								
	Heat Input CaPotential Throughput		Limited Throughput				S = W	75
	MMBtu/hr kgals/year		kgals/yr				0.3	
13								
14	45.6 2853.3		1848					
15								
16	Unrecognized	Unrecognized	d					
17	Fuel Oil usage	Heat Input Ca	apacity					
18	(kgals/year)	MMBtu/yr						
19	1005.3	140736.0						
20			-					
21								
22					Pollutant			
23		PM*	PM10	direct PM2.5	SO2	NOx	VOC	СО
	Emission Fac	2.0	2.3	1.55	42.6	20.0	0.20	5.0
25				1.55	(142.0S)			
26	Limited Emission Factor in lb/kgal				43.00			
27					75.00			<del>  </del>
	Potential Emission in tons/yr	2.85	3.28	2.21	60.8	28.5	0.29	7.1
29	Limited Emissions from fuel oil in tons/yr	1.85	2.13	1.43	39.7	18.5	0.185	1 1
30	Elithiced Elithissions from identifications/yi	1.00	2.15	1.43	39.7	10.5	10.100	4.02
	Madbadalary							
	Methodology							
	1 gallon of No. 2 Fuel Oil has a heating value of 140,000 Btu	4000 "						
	Potential Throughput (kgals/year) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1kgal							
	Emission Factors are from AP 42, Tables 1.3-1, 1.3-2, 1.3-3 and 1.3-6 (SCC 1-02-005-01/0	02/03) Supplen	ment E 9/98 (see erata file)					
	*PM emission factor is filterable PM only. Condensable PM emission factor is 1.3 lb/kgal.							
	Emission (tons/yr) = Throughput (kgals/ yr) x Emission Factor (lb/kgal)/2,000 lb/ton							
37				***************************************				
38			HAPs - Metals		***************************************		╛	
39		Arsenic	Beryllium	Cadmium	Chromium	Lead		
40	Emission Factor in lb/MMBtu	4.0E-06	3.0E-06	3.0E-06	3.0E-06	9.0E-06		
41								
42								
43	Potential Emission in tons/yr	7.99E-04	5.99E-04	5.99E-04	5.99E-04	1.80E-03		
44								
45		•			•		_	
46			HAPs - Metals (continued)					
47		Mercury	Manganese	Nickel	Selenium			
	Emission Factor in lb/MMBtu	3.0E-06	6.0E-06	3.0E-06	1.5E-05			
49			3.02 33	0.02				
50						Total		
	Potential Emission in tons/yr	5.99E-04	1.20E-03	5.99E-04	3.00E-03	9.8E-03		
52	Totalida Emilosion in tonolyi	0.002-04	1.202-00	0.002-04	0.002-00	0.02-00		
53					L	I		
	Methodolog							
	No data was available in AP-42 for organic HAPs.  Potential Emissions (tops (vear) = Throughout (MMRtu/hr)*Emission Factor (Ib/MMRtu)*8 7/	50 bro 4 / 1 0 00	O lh/top					
	Potential Emissions (tons/year) = Throughput (MMBtu/hr)*Emission Factor (lb/MMBtu)*8,76	50 HIS/YI / 2,00	O ID/(OH					
57			0		I			
58		<b></b>	Greenhouse Gas					
59		CO2	CH4	N2O				
	Emission Fac	22,300	0.052	0.26				
61				1				
62								
	Potential Emission in tons/yr	31,814	0.1	0.4				
64								
65								
66	Summed Potential Emissions in tons/yr		31,814					
67								
68								
	CO2e Total in tons/yr		31,926					
70			, , , , , , , , , , , , , , , , , , ,					
71					ı			
	Methodology							
	The CO2 Emission Factor for #1 Fuel Oil is 21500. The CO2 Emission Factor for #2 Fuel Oil is 22300.							
	Emission Factors are from AP 42, Tables 1.3-3, 1.3-8, and 1.3-12 (SCC 1-02-005-01/02/03) Supplement E 9/99	(see erata file)						
	Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.	(acc crata me)						
	Emission (tons/yr) = Throughput (kgals/ yr) x Emission Factor (lb/kgal)/2,000 lb/ton							
	CO2e (tons/yr) = 1 froughput (kgais/ yr) x Emission Factor (ib/kgai)/2,000 ib/ton CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (	(25) + N2O Potenti	ial Emission ton/vr x N2O GWP (298)					
$\perp$ //	1992 (Grown) 902 i decidal Emission tony x 002 GVVI (1) = 0114 Fotential Emission tony x 0114 GVVP (	LUT INCO FULCIL	an annount to by A 1420 OVVI (200).					1

	D	E
1		Appendix A: Emission Calculations
2		Large Reciprocating Internal Combustion Engines - Diesel Fuel
3		Emergency Generator
4		
5	Company Name:	MGPI of Indiana, LLC
6	Address:	7 Ridge Avenue, Lawrenceburg, Indiana 47025
7	Significant Source Modification No.:	0296-35496-00005
8	Significant Permit Modification No.:	029-35505-00005
9	Reviewer:	Kristen Willoughby
10	Date:	12/22/2014

			_			_	1			
	Α [	В	С	D	E	F	G			
	B. Emission	ns calculated based	on output rating (hp)							
13			_							
14			Output Horsepower Rating (hp)	1600.0						
15			Maximum Hours Operated per Year	500						
16			Potential Throughput (hp-hr/yr)	800,000						
17		Sulfur Content (S) of Fuel (% by weight)		0.500						
18										
19						Pollutant				
20			PM*	PM10*	direct PM2.5*	SO2	NOx			
-	Emission Fac	ctor in lb/hp-hr	7.00E-04	4.01E-04	4.01E-04	4.05E-03	2.40E-02			
22	Lilission i a	otor in ib/rip-in	7.002-04	4.01E-04	4.012-04	(.00809S)	**see below			
_	Potential Emi	nission in tons/yr	0.28	0.16	0.16	1.62	9.60			
_	Potential Em	iission in tons/yi	0.20	0.10	0.10	1.02	9.00			
24	*PM10 emiss	sion factor in lb/hp-hr	was calculated using the emission factor in lb	o/MMBtu and a brake specific fuel consump	tion of 7,000 Btu / hp-hr (AP-42 Table 3.3-1).					
25										
26	**NOx emiss	ion factor: uncontroll	ed = 0.024 lb/hp-hr, controlled by ignition timi	ing retard = 0.013 lb/hp-hr						
27										
_	Hazardous /	Air Pollutants (HAPs	5)							
29						Pollutant				
30										
31			Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde			
32	Emission Fac	ctor in lb/hp-hr****	5.43E-06	1.97E-06	1.35E-06	5.52E-07	1.76E-07			
33	Potential Em	ission in tons/yr	2.17E-03	7.87E-04	5.40E-04	2.21E-04	7.06E-05			
34	***PAH = Pol	lyaromatic Hydrocarb	on (PAHs are considered HAPs, since they a	are considered Polycyclic Organic Matter)						
35	****	C		AD	***					
36	****Emission	i factors in Ib/np-nr we	ere calculated using emission factors in lb/MM	ABtu and a brake specific fuel consumption	of 7,000 Btu / np-nr (AP-42 Table 3.3-1).					
37										
38										
_	Green Hous	se Gas Emissions (G	sHG)							
40	0.00	) ono aminono (o		Pollutant		1				
41				rondiant		-				
42			CO2	CH4	N2O					
-	Emission Ea	ctor in lb/hp-hr	1.15E+00	4.62E-05	9.24E-06	1				
			90 V 10 MO V 1	5) (************************************	00 mm 000000	-				
_	Potential Em	ission in tons/yr	4.60E+02	1.85E-02	3.70E-03	J				
45				1						
46										
47										
48	8									
49	9 Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1 , 3.4-2, 3.4-3, and 3.4-4.									
50	CH4 and N20	O Emission Factor fro	om 40 CFR 98 Subpart C Table C-2.							
51	Global Warm	ning Potentials (GWP)	from Table A-1 of 40 CFR Part 98 Subpart A	٨.						
-	2 Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]									
12	Potential Thre	ougnput (np-ni/yr) – i	Output Horsepower Rating (np)[ " [iviaximum	Hours Operated per Year			l			
_			cential Throughput (hp-hr/yr)] * [Emission Fact							

	11	
12	Н	I
12		
13		
14		
15		
16		
17 18		
19 20	VOC	СО
21	7.05E-04	5.50E-03
22	7.03E-04	J.JUE-03
23	0.28	2.20
24	0.20	2.20
25		
26		
27		
28		
29		
30		Total PAH
31	Acrolein	HAPs***
32	5.52E-08	1.48E-06
33	2.21E-05	5.94E-04
34		
35		
36		
37		
38	Potential Emission of Total HAPs (tons/yr)	4.41E-03
39		
40		
41		
42		
43		
44		
45		
46	Summed Potential Emissions in tons/yr	4.60E+02
47	CO2e Total in tons/yr	4.62E+02
48		
49		
50		
51		
52		
53		
54		

	Λ.	В	<u></u>		F .	T		111
	Α	В	С	D	Appendix A: Emission Calculations	F	G	Н
2					Appendix A: Emission Calculations Reciprocating Internal Combustion Engines - Natural Gas			
3					2-Stroke Lean-Burn (2SLB) Engines			
4			c	omnany Name:	MGPI of Indiana, LLC			
5			· ·		7 Ridge Avenue, Lawrenceburg, Indiana 47025			
6			Significant Source Mo					
7			Significant Permit Mo					
8			Olginiloune i cirine in		Kristen Willoughby			
9					12/22/2014			
10								
11			Maximum Heat Input Capacity (MMBtu/hr)	0.121				
12			Maximum Hours Operated per Year (hr/yr)	500				
13			Potential Fuel Usage (MMBtu/yr)	60.5				
14			High Heat Value (MMBtu/MMscf)	1020				
15			Potential Fuel Usage (MMcf/yr)	0.06				
16 17								
					Pollutant			
-	Criteria Pollutants	PM*	PM10*	PM2.5*	SO2	NOx	VOC	co
19	Emission Factor (lb/MMBtu)	3.84E-02	4.83E-02	4.83E-02	5.88E-04	3.17E+00	1.20E-01	3.86E-01
-	Potential Emissions (tons/yr)	0.001	0.001	0.001	1.78E-05	0.10	0.004	0.01
$\overline{}$			M10 emission factor is filterable PM10 + conden	sable PM.				
22	PM2.5 emission factor is filteral	ble PM2.5 + (	condensable PM.					
23								
24	Hazardous Air Pollutants (HAPs	Emission	I	1				
		Factor						
25	Pollutant	(lb/MMBtu)	Potential Emissions (tons/yr)					
26	Acetaldehyde	7.76E-03	2.35E-04					
27	Acrolein	7.78E-03	2.35E-04					
28	Benzene	1.94E-03	5.87E-05					
29	1,3-Butadiene	8.20E-04	2.48E-05					
30	Ethylbenzene	1.08E-04	3.27E-06					
31	Formaldehyde	5.52E-02	1.67E-03					
32	Methanol	2.48E-03	7.50E-05					
33	Methylene Chloride	1.47E-04	4.45E-06					
34	Hexane	4.45E-04	1.35E-05					
35	Toluene	9.63E-04	2.91E-05					
36	2,2,4-Trimethylpentane	8.46E-04	2.56E-05					
37	Total PAH**	1.34E-04	4.05E-06					
38 39		Total	2.38E-03					
$\overline{}$								
-	**PAH = Polyaromatic Hydrocarb	on (PAHs ar	e considered HAPs, since they are considered F	Polycyclic Organi	c Matter)			
41	Water Title							
-	Methodology		15 11 0000 Till 55 1					
-	Emission Factors are from AP-42	101 101 10			V - A / N			
-		_	Heat Input Capacity (MMBtu/hr)] * [Maximum Ho					
-	~otentiai ⊨missions (tons/yr) = [P	otentiai Fuel	Usage (MMBtu/yr)] * [Emission Factor (lb/MMBt	u)] / [2000 lb/ton	I			
46 47				<u> </u>	Croophouse Cos (CHC)			
-	Groonhouse Gases (CUCs)			CO2	Greenhouse Gas (GHG) CH4	N2O		
$\vdash$	Greenhouse Gases (GHGs) Emission Factor in lb/MMBtu*			110	1.25	INZU		
-	Emission Factor in Ib/MMcf**			110	1.20	2.2		
_	Potential Emission in tons/yr			3.33	0.04	0.00		
52	otenual Emission in tons/yi			3.33	1 0.04	1 0.00		
-	Summed Potential Emissions in t	tons/vr			3.37			
54	Jammea i Vientiai Ellissions III (	iono/yi			3.31			
74								

	Α	В	С	D	E	F	G	Н	
55									
56	CO2e Total in tons/y				4.29				
57									
58									
59	Methodology								
60	*The CO2 and CH4 emission factors	are from Emis	sion Factors are from AP-42 (Supplement F, July 200	00), Table 3.2-2					
61	**The N2O emission factor is from AF	<sup>2</sup> 42, Table 1.4	1-2. The N2O Emission Factor for uncontrolled is 2.2.	The N2O Emission	on Factor for low NOx burner is 0.64.				
62	Global Warming Potentials (GWP) fro	m Table A-1 o	of 40 CFR Part 98 Subpart A.						
63	For CO2 and CH4: Emission (tons/yr	·) = [Potential f	Fuel Usage (MMBtu/yr)] * [Emission Factor (lb/MMBtu	)] / [2,000 lb/ton]					
64	For N2O: Emission (tons/yr) = [Poten	ntial Fuel Usag	e (MMCF/yr)] * [Emission Factor (lb/MMCF)] / [2,000	lb/ton]					
	CO2e (tons/yr) = CO2 Potential Emiss	sion ton/yr x C	O2 GWP (1) + CH4 Potential Emission ton/yr x CH4	GWP (25) + N2O F	Potential Emission ton/yr x N2O GWP (298).				
65									
66									
67	Abbreviations								
68	PM = Particulate Matter		NOx = Nitrous Oxides				CO2 = Carbon Dioxide		
69	PM10 = Particulate Matter (<10 um)		VOC - Volatile Organic Compounds				CH4 = Methane		
70	SO2 = Sulfur Dioxide		CO = Carbon Monoxide				N2O = Nitrous Oxide		
71							CO2e = CO2 equivalent emissions		

I A	АВ	С	D	E	l F
1	, , ,	<u> </u>		Appendix A: Emission Calculations	
2				Reciprocating Internal Combustion Engines - Diesel Fuel	
3				Output Rating (<=600 HP)	
4				Maximum Input Rate (<=4.2 MMBtu/hr)	
5				MGPI of Indiana, LLC	
6			Address:	7 Ridge Avenue, Lawrenceburg, Indiana 47025	
7			Significant Source Modification No.:	0296-35496-00005	
8			Significant Permit Modification No.:	029-35505-00005	
9			Reviewer:	Kristen Willoughby	
10				12/22/2014	
11					
	sions calculated based on	output rating (hp)			
13	nons calculated based of	routput ruting (np)			
14		Output Horsepower Rating (hp)	235.0	]	
15		Maximum Hours Operated per Year	500		
16		Potential Throughput (hp-hr/yr)	117,500	1	
15 16 17		Sulfur Content (S) of Fuel (% by weight)	0.500		
18					
19 20					Pollutant
20		PM*	PM10*	direct PM2.5*	SO2
21 Emission	ion Factor in lb/hp-hr	2.20E-03	2.20E-03	2.20E-03	2.05E-03
22					
23 Potenti	tial Emission in tons/yr	0.13	0.13	0.13	0.12
27 28 <b>Hazar</b> o	cemission factor: uncontrol rdous Air Pollutants (HAP F	lled = 0.024 lb/hp-hr, controlled by ignition tim	ing retard = 0.013 lb/hp-hr		Dallistant
29	-			T	Pollutant
30 31		Dannana	Talvana	V. Jan a	1.2 Dutadiana
	ion Footon in 16/6m 6 *****	Benzene 6.53E-06	Toluene	Xylene	1,3-Butadiene
	ion Factor in lb/hp-hr****		2.86E-06	2.00E-06	2.74E-07
	tial Emission in tons/yr	3.84E-04	1.68E-04	1.17E-04	1.61E-05
25	-	bon (PAHs are considered HAPs, since they a rere calculated using emission factors in lb/MN		f 7,000 Btu / hp-hr (AP-42 Table 3.3-1).	
39 Green	n House Gas Emissions (C	GHG)			
40		,	Pollutant		1
41	ļ				1
42		CO2	CH4	N2O	
	ion Factor in lb/hp-hr	1.15E+00	4.62E-05	9.24E-06	1
	tial Emission in tons/yr	6.76E+01	2.71E-03	5.43E-04	1
45	, and a second of			•	_
46					
47					
48					
49 Method	odology				
43 IMETHO	Judiogy				

	А	В	С	D	E	F		
50	Emission Factors are from AP42 (Supplement B 10/96), Tables 3.3-1 and 3.3-2							
51	CH4 and N2	2O Emission Factor fr	om 40 CFR 98 Subpart C Table C-2.					
52	Global Warı	ning Potentials (GWI	P) from Table A-1 of 40 CFR Part 98 Subpart A	4.				
53	Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]							
54	Potential Emission (tons/yr) = [Potential Throughput (hp-hr/yr)] * [Emission Factor (lb/hp-hr)] / [2,000 lb/ton]							
55	CO2e (tons/	yr) = CO2 Potential E	Emission ton/yr x CO2 GWP (1) + CH4 Potent	al Emission ton/yr x CH4 GWP (25) + N2O F	Potential Emission ton/yr x N2O GWP (298).			

	G	Н	I	J
1				
2				
3				
4				
5				
6				
7				
8				
-				
9				
10				
11				
12 13				
14				
15				
16				
17				
18				r
19				
20	NOx	Voc	СО	
21	3.10E-02	2.51E-03	6.68E-03	
22 23	1.82	0.15	0.39	
24	1.02	0.13	0.59	
25				
26				
27				
28				
29				T (   DAIL
30 31	Formoldohudo	Acataldahuda	Aoroloin	Total PAH HAPs***
32	Formaldehyde 8.26E-06	Acetaldehyde 5.37E-06	Acrolein 6.48E-07	1.18E-06
33	4.85E-04	3.15E-04	3.80E-05	6.91E-05
34	4.00€ 04	0.10L 04	0.002 00	0.012 00
35				
36				
37				
38		Potential Emission of Total HAPs (tons/yr)	1.59E-03	ļ .
39				
40				
41				
42				
43 44				
44				
46		Summed Potential Emissions in tons/yr	6.76E+01	
47		CO2e Total in tons/yr		ii
48		COZE TOTAL III TOTIS/YI	0.7 0ET01	
49				
+3				

	G	Н	I	J
50				
51				
52				
53				
54 55				
55				